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COMPUTERWORLD

CW GUIDE TO WORKGROUP SOFTWARE, PAGE 78

Novell on target to ship Win 95 requester

By Laura DiDio

On time and on the mark.

That's the slogan Novell, Inc. engineers were chanting recently as they shipped a limited number of alpha copies of the NetWare Client Requester for Windows 95 to about two dozen large corporate customers.

Novell wants to avoid a repeat of bugs in earlier requesters, such as the NetWare Requester for Microsoft Windows NT Client, which was late and problematic. To that end, the Provo, Utah, company plans to follow up the current limited alpha test with a "widespread beta release slated to ship on Aug. 20, just four days before Microsoft's Windows 95 is released," said Willy Donahoo, Novell's director of product marketing.

Demand is so high that even though Novell deliberately kept the initial test group small, some ingenious users have managed to inveigle "bootlegged" copies of the code and are now using it on pilot networks. As a result, systems operators on forums such as CompuServe's NetWire are already getting a steady stream of inquiries for tips on how to optimize performance.

Demand is so high that even though Novell kept the initial test group small, some ingenious users have managed to inveigle "bootlegged" copies.

For example, NetWire systems operator Mike Crabtree said he has provided technical tips to several users but reminded them that "since Windows 95 isn't released, we don't officially support it here."

Novell, *page 14*

Win 95 plans set

Survey shows Microsoft OS dominating desktops by 1997

By Stuart J. Johnston

Although most users declined to give Microsoft Corp.'s Windows 95 an "A" on the eve of its launch, an exclusive *Computerworld* survey found that the vast majority will adopt the operating system in its first year.

According to the survey, a whopping 79% of corporate opinion makers who have tested Windows 95 will recommend that their companies move to it within 12 months of its release.

But only 29% plan to adopt the operating system in the first six months. Most of the 100 sites polled said they will sit out those early months before beginning large-scale migrations.

Despite the thumbs-up on migration, some 81% of those polled gave Windows 95 roughly a B- grade, with 58% assigning it a B and 23% rating it as average with a C grade (see report card at left). The top grade of A, or "very good," came from 15% of the respondents; 4% gave it a thumbs-down with a D grade.

Report card

USERS GRADE WIN 95'S OVERALL PERFORMANCE

15%	A
58%	B
23%	C
4%	D
0%	F

Base: 100 Windows 95 beta users
Source: Computerworld survey

Aggressive projections

Computerworld's "data fits with our own expectations, [although] it's actually more aggressive than we had forecast," said Rob Enderle, senior industry analyst for client/server software at Dataquest, Inc. in San Jose, Calif. "It will be predictive of what's going to happen" even with users who haven't yet seen Windows 95, he said.

The survey appears to bear out most of Mi-

Windows 95, *page 115*

Borland on a roll with profits, 32-bit Delphi

By Elizabeth Heichler

Borland International, Inc. is just full of surprises this summer. Last week it startled Wall Street with better-than-expected first-quarter results. Next week it will leapfrog the competition when it unveils a next-generation, 32-bit development tool for Windows 95.

Chairman Philippe Kahn *and his board are seeking potential buyers for Borland*

At Borland's annual developers conference in San Diego, which kicks off Aug. 7, the Scotts Valley, Calif.-based company will show off a new version of Delphi aimed at building applications for Microsoft Corp.'s Windows 95 and Windows NT operating systems. Delphi was first released in February as a 16-bit tool for Windows 3.1-based development. Borland hasn't announced a ship date for the so-called Delphi32.

A key feature of Delphi32 is full support for 32-bit Windows 95, Borland confirmed. This will enable developers to

Borland, *page 14*

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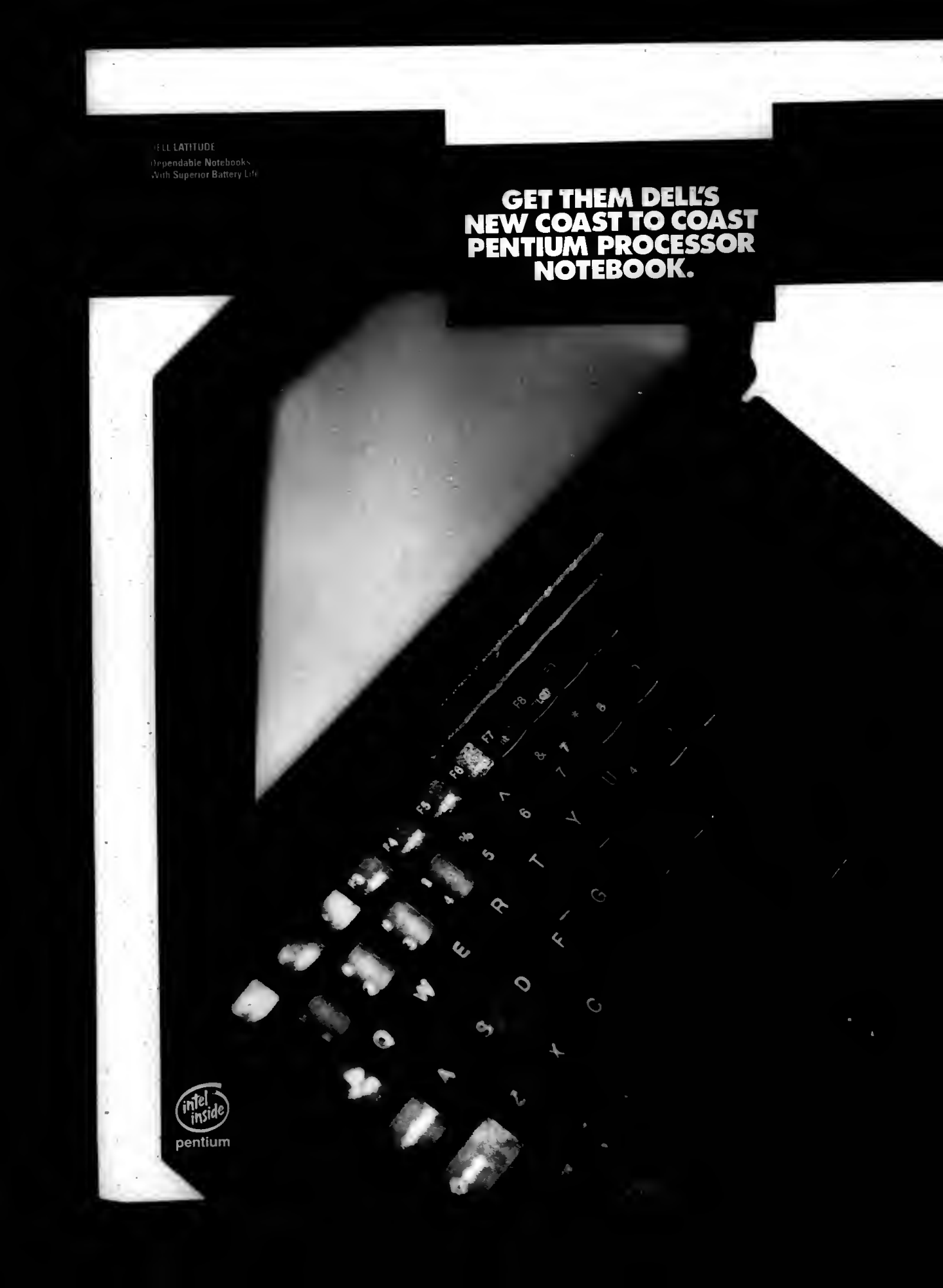
Tyler Hubbard

PIRACY STORIES INSIDE:

- PIRACY THRIVES where there's sociopolitical turmoil. Pages 87 and 88.
- U.S. INFORMATION SYSTEMS CHIEFS are concerned that piracy will affect their pocketbooks. Page 89.
- VENDOR STRATEGIES include employing ex-FBI agents to sniff out bootleggers. Page 89.
- BIZARRE DIVIDEND: "We do hope it's our products they're stealing," says David Bradford, general counsel at Novell, Inc. Why do some vendors want their products on the black market? The answer may surprise you. Page 89.

ARE YOUR MOBILE USERS HAVING A PROBLEM WITH BATTERY LIFE?

intel inside
pentium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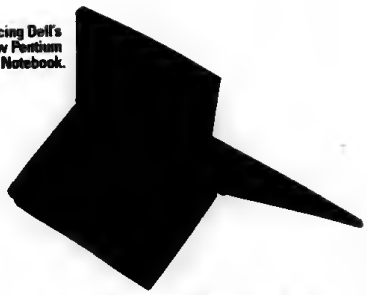

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*The VeriTest Cross-Country v2.0 test simulates typical executive use of Microsoft Office® applications in Microsoft Windows® v3.11 during an airplane flight. Power management was enabled and 8MB of RAM was installed. VeriTest, inc. is located in Santa Monica, CA. †For a complete copy of our Limited Warranties, please write to Dell USA L.P., 2214 W. Braker Lane, Bldg. 3, Austin, TX 78758. Prices and specifications valid in the U.S. only and subject to change without notice. Pentium and the Pentium processor logo are registered trademarks of Intel Corporation. ©1995 Dell Computer Corporation. All rights reserved.

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Release 3.0 of SAP AG's R/3 enterprise client/server software offers a slew of enhancements plus a production planning module for process manufacturers.

4 3Com buys Chipcom
3Com is seeking to make its biggest acquisition to date — rival hub vendor Chipcom — for a stock swap worth $775 million. But the jinx that's scuttled some previous merger bids may again be afoot: Cabletron last week filed papers to buy up to $50 million worth of Chipcom stock.

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As Novell outlined plans for integrating GroupWise XTD and NetWare directories, some large users remained unimpressed, saying they need much more.

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Raw nerves and misery!
Rightsizing, outsourcing and re-engineering are taking a toll on IS staff. What you do about it can boost your bottom line or make the intolerable worse. **Page 75**

Users say discussion databases *are full of obstacles. Their advice? Hang in there — the implementation pains are worth the productivity gains.* **Page 78**

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Rich Tennant's "The 5th Wave" cartoon is on vacation and will be moving to another location in Computerworld. *We'll keep you posted.*

Cabletron seeks to scale Spectrum across enterprise

By Patrick Dryden

In an effort to make its network management platform more scalable across enterprise environments, Cabletron Systems, Inc. has altered the software's core structure, company officials said last week.

Version 4 of Spectrum for Open Systems, due out this fall, seeks to extend distributed management capabilities further by making all Spectrum servers and applications aware of one another.

Distributed functions

This means that key functions such as scheduling, alarm monitoring and reporting will work across all management domains, said Bill Tracy, engineering director of Spectrum applications at Cabletron in Rochester, N.H.

"Spectrum 4 is even more distributed," said beta tester Blair Sanders, a senior technical staff member in the electronic communications department at Texas Instruments, Inc. He said he expects to be running 25 Spectrum servers by the end of the year to manage the semiconductor manufacturer's global network from the command center at Dallas headquarters and regional sites.

"We'll be able to pan among servers without consciously moving from one to the other and making new client connections," Sanders said. "This gives us easier, more seamless navigation of the entire enterprise."

Spectrum leaped ahead of established platforms technologically when Version 3 shipped last year, analysts said. It added distributed management capabilities, which means one server could poll, model and forward information about its designated network.

For a year, Spectrum has been "the best kept secret in the industry," said John McConnell, president of McConnell Consulting, Inc., a network management consultancy in Boulder, Colo. Now he said he sees Spectrum delivering the next level of scalability for enterprise networks.

Not all Spectrum users are ready for such capabilities, however.

"Right now, I'm concerned about getting my whole network up under one server," said Rick Meier, senior network systems engineer at Osram Sylvania, Inc. in Danvers, Mass.

Meier said he is pushing the limit of one server to manage key components at four sites, but the promised version could help later. "Sometime we'll probably have every device and desktop on our monitor, but I don't want to be on the bleeding edge. I'd want to see this version proven before going to multiple servers."

Currently, 15 sites are beta-testing Spectrum 4, and application developers will get the new code in two weeks, Tracy said. Cabletron hopes to attract broader commitment by vendors of systems management software with these changes.

The new alarm monitor will provide scrolling window displays for matching policies — sets of filters and conditions — to a list of all available applications and responses. Then administrators can run one trouble-ticketing application for the enterprise instead of one per Spectrum server, Tracy said.

Distributing alarms also lets TI escalate alarms in a peer fashion — sending them along to support experts and centers arrayed by time zones — instead of just hierarchically, Sanders said.

Restructuring format

To distribute network modeling data among servers more efficiently, Cabletron changed the storage format for compressing files by as much as 20-to-1, Tracy said.

Files distributed among servers dropped from megabytes to kilobytes in size, according to Sanders. "That reduces the network load and speeds transfer," he explained.

Also, Spectrum 4 will be able to generate enterprisewide reports and post such information to a server on the World Wide Web.

"Porting data to a Web server was a definite requirement," Sanders said. "Now we can offer global visibility to management statistics with easy access, so just about anyone can see what's going on."

Middleware goes everywhere

The following enhancements to Spectrum will let management applications interact across large networks instead of running separately on Spectrum servers

DISTRIBUTED POLICY-BASED ALARM NOTIFICATION
Alarms raised from any management domain can trigger a response (write a trouble ticket, page a technician).

DISTRIBUTED SCHEDULER
The core scheduling function spans all servers (administer policies or run reports across domains).

DISTRIBUTED DATA ACCESS
New format for modeling the network compresses data for faster updates with less overhead and better reporting – even via Web pages.

DISTRIBUTED SCRIPTING INTERFACE
New command line interface speeds adaptation of applications to more scalable Spectrum 4.

Cisco's software boasts integrated management. See page 51.

SAP's R/3 runs late, but users give high marks

By Julia King

SAP AG's planned July delivery date for Release 3.0 of its R/3 client/server software has now slipped to October. But its extensive enhancements are worth the wait, according to beta users, analysts and others interviewed last week.

A SAP AG official, speaking last week from the company's U.S. board meeting in San Francisco, also disclosed that the company will announce a production planning module for process manufacturers when it formally introduces Release 3.0 at its September user conference in Phoenix.

Earlier this year, SAP officials said nearly every R/3 module has been tweaked in Release 3.0.

Services spotlight

Among the new features in Release 3.0 are support for electronic commerce and enhanced international operations, multiple language and parallel currency capabilities, and better intercompany communications and data exchange. Also on tap are various enhancements geared toward nonmanufacturing users, notably companies in service businesses.

"We worked directly with SAP developers on some key functions, and so far, we think they've delivered on what we wanted," said Mike Capellas, director of information systems at Schlumberger Ltd., a Houston oil field services company with operations in 70 countries.

Capellas said Schlumberger's position as a global company makes it especially interested in Release 3.0's parallel currency and international and intercompany functionality. The latter feature enables subsidiaries and business units in the same company to more easily exchange data.

So far, Schlumberger has deployed R/3 Release 2.2 software at 13 locations serving 300 users. Eventually, Release 3.0 will be rolled out to 270 sites serving 10,000 users worldwide, he said.

Also slated for release at the September user conference is an upgrade procedure called repository switch, which will reduce the time it takes users to convert from Release 2.2 to 3.0 to "just a few hours," said Paul Wahl, a SAP AG executive vice president.

Wahl emphasized that much of R/3's enhanced functionality has been directly user-driven, and users confirmed this.

For example, embedded in Release 3.0 is SAP's Application Link Enabling (ALE) middleware technology, an enhancement that was high on developers' wish list at San Francisco-based Chevron Corp., a SAP beta site. This is the second full week Chevron is testing Release 3.0.

"It's too early to say whether everything users wanted is in the new system, but there is a really great product called ALE," said Lisa Florreich, Chevron's San Ramon, Calif.-based R/3 business design team manager.

Florreich, who spent several weeks with SAP developers in Germany earlier this year, described ALE as "a much slicker way to move data from one SAP database to another." Among other things, this will make it much easier to maintain master data, she said.

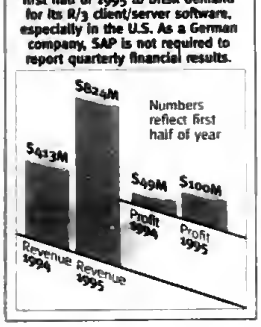
Enhancements in Release 3.0 also extend to R/3 financial applications, according to Vinnie Mirchandani, research director at Gartner Group, Inc., a consultancy in Stamford, Conn. For instance, Release 3.0 will support activity-based costing and a more straightforward method for configuring custom orders during order entry, then tracking them through manufacturing and shipping, he said.

"SAP is beginning to pump money into functional improvements, which should come as damn good news to the user community," Mirchandani said.

Now, he said, R/3 users have to purchase additional software from niche vendors then integrate it into their SAP systems. Many of R/3's enhancements should eliminate this, he said.

Sweet syrup from SAP

SAP AG last week attributed a 67% increase in sales during the first half of 1995 to brisk demand for its R/3 client/server software, especially in the U.S. As a German company, SAP is not required to report quarterly financial results.



Human resources can be hooked into SAP and other applications. See page 47.

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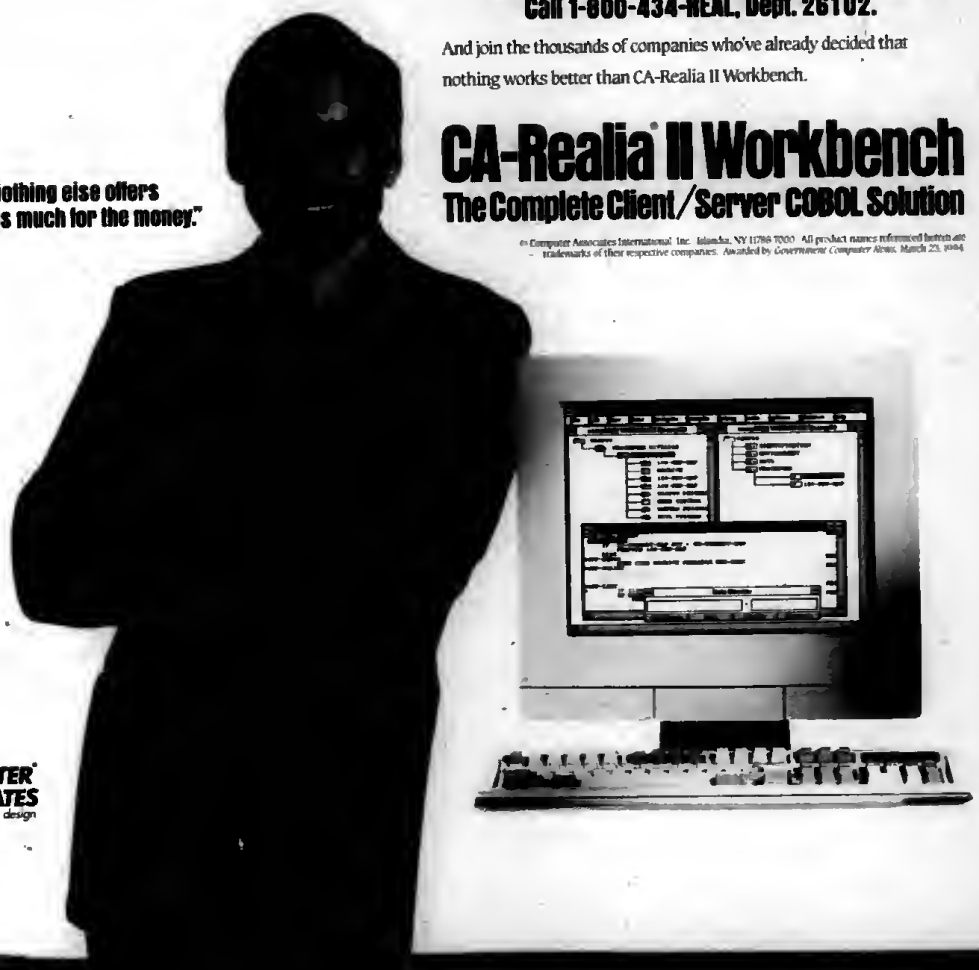

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Jets and the 'net

Douglas Aircraft to deliver on-line repair data to crews

By Jean S. Bozman
LONG BEACH, CALIF.

Douglas Aircraft Co., the commercial airplane division of $13.2 billion McDonnell Douglas Corp., is firing up an engine to ship tons of documentation around the world — the Internet.

A new Internet service, now in its shakedown phase, holds the promise of delivering large segments of 40,000-page maintenance manuals for the MD-11 jet to dozens of airlines worldwide by 1996. On-line documents and manuals for other jets will follow.

By September, airline maintenance crews will get their first look at repair bulletins provided by the Internet server, a Hewlett-Packard Co. HP 9000 Model 800 E Unix server and an Oracle 7.1 database. Douglas information systems managers are starting to ship passwords to top airline customers.

Dramatic business payoffs are expected in dollar savings and timely delivery of aircraft repair data, said Brad Foreman, Douglas' general manager of maintenance and modifications engineering. Producing documents in digital form over the Internet, on CD-ROM and on floppy disks will cost less than half what current paper-based documents cost, Foreman said.

Douglas' Pauline Nornholm: *'We do have a lot of concerns about security'*

Security a priority

All visitors to Douglas' home page will get basic company information, but those with passwords will be allowed to dive into a deeper level of secure data.

"We do have a lot of concerns about security," said Pauline Nornholm, Douglas' general manager of IS. "We have a whole team from my group and in corporate looking into the implications of going on the Internet."

The Internet server includes several layers of security, including encryption from Netscape Communications Corp.'s Commerce Server, passwords and an Internet firewall.

"You want to confirm who you're talking to and encrypt whatever sensitive data you're sending between two points," said IS project manager Douglas E. Alberg, who led the Internet project.

Large companies are edging closer to one another on the Internet while worrying about which data to share with their best customers.

Douglas is "early in doing this," said Bob Weber, a principal at Northeast Consulting Resources, Inc. in Boston. "Within the next year to 18 months, you're going to see a lot of the early adopter companies trying this with their most trusted partners."

In the process, he said, large firms will save the cost of dedicated T1 leased lines and shipment of paper documents to top customers.

Sneak preview

Since June, an early-view program allowed a few airlines to provide feedback on Douglas' Internet site. One of these, Delta Air Lines in Atlanta, is readying a system to download data from the Internet server for use on its own maintenance computers.

Because the data is delivered in Internet-compatible standard formats, it can be reused by airlines. That, in turn, will reduce programming time at Douglas.

"I told my [IS] people we're here to deliver information on [the basis of] a business need, not to develop code," Nornholm said. A three-person team is converting documents to Standard Generalized Markup Language format with the Internet's Hypertext Markup Language extensions.

There is already some experimentation in using Pentium-based computers on jets for Internet access by pilots and maintenance crews.

"If the aircraft is on the ground in Tokyo, you could take the system on the airplane, plug a cellular phone into it and access the Internet," Foreman said. "You could pass the data [in] real time from Long Beach to your computer right there on the airplane."

Chevron, with 22 internal Web sites, posts its first external home page. See page 54.

Cabletron snarls 3Com/Chipcom deal

By Laura DiDio
BOSTON

■ 3Com Corp.'s proposed bid to buy Chipcom Corp. via a stock swap worth $775 million turned into a real life game of Monopoly late Friday afternoon.

That's when rival Cabletron Systems, Inc. decided to play spoiler in an effort to block 3Com with its own counterproposal to buy up to 50% of Chipcom's outstanding common stock.

Cabletron Chief Financial Officer David Kirkpatrick declined to comment on the hub maker's surprise last-minute maneuver. In a prepared statement, Chipcom President Robert Held said his firm planned to proceed with the 3Com acquisition. 3Com could not be reached by press time.

If the 3Com/Chipcom deal does go through, the Santa Clara, Calif., entity would have a combined revenue of $1.6 billion, second only to market leader Cisco Systems, Inc. That would leave Cabletron in fourth place with about $1 billion in annual revenue. But after completing more than a dozen acquisitions during the past two years, 3Com is cash-poor compared with Cabletron, which has no debt and has yet to make any acquisitions.

Initially, users like Steve Flis, network manager at Metrowest Medical Center in Framingham, Mass., were upbeat about the 3Com/Chipcom deal.

Flis and Alan Robson, director of information services at Val-Pak Direct Marketing Services, Inc. in Largo, Fla., said their major concern with the postmerger entity was that their Chipcom OnCore and OnLine hubs and switching hubs may no longer be supported.

At last Thursday's hastily called press conference here, 3Com President Benhamou pledged to maintain the Chipcom hubs — with the exception of the Galactica model, which he said has reached the end of its life cycle.

Skip MacAskill, a senior analyst at Gartner Group, Inc., said in the short term, the merger will have a minimal impact on users "because they'll still be able to buy both companies' respective products."

3Com's effort to acquire Chipcom comes just one year after SynOptics Communications, Inc. and Wellfleet Communications, Inc. merged into Bay Networks. The spate of mergers and acquisitions underscores the increasingly commoditized nature of internetworking hardware gear, where technology can become obsolete in a year or less.

Big money game

Users and analysts said the consolidations usher in a new era in which vendors must have at least $1 billion in annual sales to be considered top-tier players.

"Internetworking is now an industry of giants. If a vendor doesn't have critical mass in terms of a broad product suite, distribution channels and service and support, they don't play," said Charles Robbins, an analyst at Aberdeen Group, Inc., a Boston consultancy.

Still, despite 3Com's business-as-usual posture, customers such as Robson said the merger mania does affect purchase decisions. "It means that I'd hesitate to make a major internetworking purchase from a vendor other than any of the Big Four: Bay Networks, Cabletron, Cisco or 3Com," he said.

Novell's GroupWise integration limited

By Saruchi Mohan

Novell, Inc. is aiming its NetWare 4.1 guns at the enterprise, but it may miss its mark in large shops with multiple messaging environments.

Novell officials detailed plans last week for integrating the GroupWise XTD messaging system and NetWare Directory Services (NDS), but users at some large enterprises remained unimpressed. GroupWise XTD, Novell's answer to Lotus Development Corp.'s Notes, will ship next year and will integrate with NetWare 4.1.

Because of this NetWare-only focus, administrators at large organizations with multiple electronic-mail systems will still have to maintain and manage several directories, observers said. Still, the plan as outlined — which essentially lets NDS function as the directory for GroupWise XTD — is good news for NetWare shops, which traditionally have had to maintain separate directories for GroupWise and for the network.

Good for some

"If you're a GroupWise shop on Novell, it's pretty cool," said Steve Bradbury, a systems analyst at Chevron Information Technology Co. in San Ramon, Calif.

David Janiszewski, manager of office automation at Nordic Track in Chaska, Minn., said GroupWise/NDS integration will be "key for us for administration." Nordic Track has about 750 users on NetWare 3.x and 4.x. Novell's offering is a benefit because it offers directory services, he said.

GroupWise XTD features

- Server-to-server replication
- Client-to-server and server-to-client replication
- Document management
- Wide-area scheduling

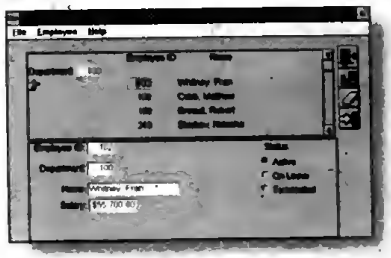
But Bradbury and other users said that benefit might not be enough for a shop with multiple E-mail systems. John Schulz, senior project manager for groupware at US West Management Information Services in Englewood, Colo., said his is not a NetWare 4.1 shop, so the new plan "doesn't offer much." Besides, he added, his company has other systems, such as Unix, Microsoft Corp.'s Windows NT and mainframes. "We need a broader-based solution," he explained.

But Novell's NetWare-first philosophy does not bother some observers. "Of course they are going to be more supportive of NetWare," said Karl Wong, director and principal analyst at DataQuest, Inc. in San Jose, Calif. "Do you blame them?" He pointed out that GroupWise at least runs on other platforms — even if the integration is only with NDS.

DEVELOPER PRODUCTIVITY COMPARISON

Sybase

PowerBuilder 4.0



52 lines of code

```
dw_d
Maste
IF dw
  COM
  Mess
ELSE
  ROL
  Mess
END
Menu
w_em
Menu
w_em
Menu
PrintS
Menu
Close
Menu
w_em
Menu
w_em
)
Menu
Show
```

```
ELSE
  COM
  dw_n
  dw_n
END I
Master
ed
long er
long to
rownu
empnu
IF dw_
  COM
ELSE
  ROL
  Messa
detail")
END I
Master
close(p
Master
dw_de
dw_de
dw_de
Master
```

```
Application.Open
SQLCA.DBMS=ProfileString("PB.INI","Data
base","DBMS","")
SQLCA.DbParm=ProfileString("PB.INI","Da
tabase","DbParm","")
open(w_employees)
Application.Close
DISCONNECT using SQLCA;
IF SQLCA.SQLCODE <> 0 THEN
  ROLLBACK using SQLCA;
  MessageBox("Disconnect",SQLCA.SQLER-
RTEXT)
END IF
MasterWindow.Open
CONNECT using SQLCA;
IF SQLCA.SQLCODE <> 0 THEN
  MessageBox("Connect
Error",SQLCA.SQLERRTEXT)
  HALT
END IF
dw_master.settransobject ( sqlca )
dw_detail.settransobject ( sqlca )
IF dw_master.Rettieve() = -1 THEN
  ROLLBACK using SQLCA;
  MessageBox("Retrieve","Retrieve Failed")
```

** Taken directly from "PowerBuilder Getting Started"
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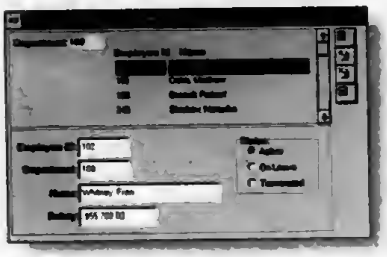
Oracle

Developer/2000



4 lines of code

```
exit_form;
create_record;
delete_record;
commit_form;
```

It's amazing how many lines of code you'll find behind the exact same application.

These two programs do exactly the same thing: create a Windows application that retrieves and updates employee information stored on a database server. The 52 line PowerBuilder application was taken directly from the PowerBuilder manual Oracle's new Developer/2000** implements the identical application in just 4 lines of code.

If you want to experience the productivity benefits of second generation client/server tools call 1-800-633-1071, Ext. 8168.

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Europe safeguards privacy

Directive requires stricter protection of personal data

By Mitch Betts

The European Union last week gave final approval to a tough, far-reaching privacy law that may force dramatic changes in the way U.S. and multinational companies handle data about European employees and customers.

The European directive requires far stronger protection of personal data — such as race, politics, finances, religion, health and union membership — than U.S. information systems managers are used to, experts said (see chart).

Microsoft Corp. has already pledged that its global on-line service, The Microsoft Network, will comply with the European law, said George Meng, lead product manager at the Redmond, Wash., company. For example, Microsoft will not release any subscriber data to companies outside the network, he said.

Even U.S.-based data centers will have to upgrade security and privacy procedures and allow inspection by European regulators if they house data on European citizens, said Ralph Spencer Poore, who has monitored the "transborder data flow" issue for 15 years as a consultant at Coopers & Lybrand in Dallas.

In essence, companies must identify databases that have personal information on European citizens and get regulatory approval to move that data to countries with weak privacy laws, such as the U.S., India and South Korea, Poore said.

U.S. companies should beef up their privacy policies to convince the European Union that they can be trusted with European records, said Joel R. Reidenberg, an associate professor of law at Fordham University in New York.

European countries such as France, Sweden, Germany and the UK already have tough privacy laws that have tripped up IS plans to move personnel and payroll systems.

Poore predicted that firms will simply outsource the problem to European service bureaus and have them comply with the privacy rules.

The member states of the European Union have three years in which to amend or pass national legislation that conforms to the minimum requirements of the directive. The next battleground will be the details of how each nation implements the directive's general language, said Ronald L. Plesser, a Washington attorney representing the Direct Marketing Association.

Many privacy advocates consider the U.S. a prime candidate for blacklisting because it lacks a privacy commissioner and broad privacy law covering the private sector.

However, several experts said it is unlikely the Europeans will blacklist the entire U.S. because such a drastic action could be viewed as a trade barrier. Instead, European regulators are likely to require contracts in which U.S. companies promise to protect confidential data under the European rules.

The European Union's data-protection directive has the following provisions:

- Individuals have the right to see and correct virtually any personal data
- Companies must notify individuals of the intended uses for personal data and may not use or release the data for other purposes without the individual's consent
- Companies must have computer security safeguards for personal data
- Exporting personal data to countries with "inadequate" privacy laws is prohibited

Edwin Wilson

MasterCard extends its limit

Firm will create giant warehouse, let partners have access to data

By Kim S. Nash

Not only has MasterCard International, Inc. started to build one of the world's biggest data warehouses, but the credit-card company last week said it plans to gradually open the system to its 22,000 bank, retailer, restaurant and other partners.

Called MasterCard On-Line, the monster warehouse is due to undergo internal testing this summer. It will start at a whopping 1T byte in size and grow from there. Up to 30,000 user PCs, workstations and other client devices will ultimately have access to the warehouse, which will contain data on the company's 8.5 million daily credit- and debit-card transactions, MasterCard officials said (see chart).

MasterCard faces tough competition in the financial services industry and hopes that providing such unprecedented access to its customer information will keep its partners loyal, said Rod Mack, senior vice president of systems development at MasterCard's St. Louis office.

A couple of other twists make MasterCard's plan out of the ordinary, said Richard Creeth, an analyst at Creeth, Richman and Associates, Inc. in Norwalk, Conn. First, few companies have outlined plans to let outsiders, whether or not they are close partners or customers, access their data warehouses.

Further, a warehouse of such huge proportions would pose a challenge to any of today's technology, particularly end-user query tools, he added.

MasterCard Market Advisor

Goals for the giant warehouse include the following:

- By October, give selected banks, retailers and other MasterCard partners access to 1T byte of current data on the 8.5 million daily transactions of its credit and debit-card customers
- Steadily add data on various subject areas and features to Market Advisor, such as retailer and restaurant specifics and the ability to set up alerts triggered by unusual cardholder activity, during 1996
- Open the warehouse to most of MasterCard's 22,000 partners worldwide during the next year

MasterCard has chosen Oracle Corp.'s Oracle7 database and Developer/2000 development tools to make its vision a reality. The project is part of a multiyear corporatewide information systems revamp to move key applications off 15-year-old mainframes to client/server setups of Oracle software on various Unix hardware, according to Mack.

Users will access the warehouse via a proprietary broadband network that MasterCard partners use to run credit- and debit-card authorizations at points of sale, he added.

Many variations

With MasterCard On-Line, partners would be able to analyze summary data on MasterCard cardholder transactions by several criteria, either separately or combined, Mack explained. For example, an airline may want to determine vacation destination preferences among people who earn at least $60,000 annually and charge restaurant dinners more than twice a month.

Mack stressed that summary data only, not information on individuals' transactions, would be provided.

A final decision on front-end query tools has not yet been made. MasterCard may buy third-party on-line analytical processing (OLAP) utilities or create its own internally, Mack said.

Chase Manhattan lets financial managers analyze securities data without programming. See page 41.

Microsoft, Visa boost security

By Gary H. Anthes and Thomas Hoffman

Microsoft Corp. and Visa International, Inc. will announce programming specifications for secure electronic commerce next month. Based on public key cryptography, the proposed standard will authenticate users and protect the integrity and confidentiality of financial information at each step in the flow of digital credit among consumers, merchants and banks.

The specifications, called Secure Transaction Technology (STT), will be free to developers who want to write an electronic commerce application. Microsoft will also license an implementation of STT in its Win32 code and may build it into other products, such as Money, said Tom Johnston, consumer systems product manager at Microsoft.

The Microsoft STT software will enable consumers to encrypt all data for confidentiality at each point in a chain that includes the merchant, the merchant's bank and the card issuer. It will also create a digital signature that gives merchants a signed order that cannot be altered or repudiated and provides the buyer with a signed receipt for the order.

NaBanco in Fort Lauderdale, Fla., the world's largest credit-card processor, said it hopes to begin offering STT-enabled services to its merchant customers by year's end.

Chemical Bank announces on-line ties with Microsoft. See page 41.

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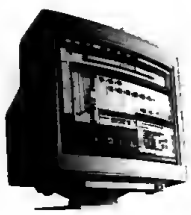

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NetView remake eases complexity

By Patrick Dryden

IBM launched a major revision of its network management platform last week, adding an anticipated slew of changes intended to help beleaguered administrators maintain networks growing in size and complexity.

Version 4 offers a threefold performance improvement through a client/server redesign, automated response that links known solutions to pesky problems and security services that govern management views and tasks by diverse support staff.

NetView for AIX enhancements

CLIENT/SERVER ARCHITECTURE
More operators access an unburdened management server

CUSTOMIZATION
Separate supporters monitor by time, location or expertise

SECURITY
Authentication services control access

EVENT FILTERS, CORRELATION
Operator involvement reduced and solutions automated

NetView for AIX is the core piece of SystemView for AIX, IBM's integrated platform for managing all components of an enterprise network from an RS/6000 workstation. Co-developer Digital Equipment Corp. plans to ship this version Sept. 1 to update Polycenter Manager on NetView for Digital's Unix. Digital will also release a Microsoft Corp. Windows NT adaptation in two to three months, the company said. Whether run alone or as the foundation for an integrated management platform, NetView now better addresses the costly control of distributed network environments.

Improved performance

Beta tester Jerry Wetherington at the University of Florida said NetView for AIX is faster and more responsive now that he can separate the monitoring functions on one server from the display and interaction activity on client workstations.

More support staff can run NetView across the university's network directly, instead of via an X Window System session that soaks up the manager's resources, said Wetherington, the systems coordinator at the university's regional data center in Gainesville, Fla.

At publisher TVSM, Inc. in Horsham, Pa., four administrators currently use the computer room to run NetView for AIX so they can avoid the processing burden of X sessions, said John Spiewak, director of information systems. "I'd like to off-load the management server and reduce network traffic as well with a new version they can run from their desk," he said.

Available now, NetView for AIX costs $15,000 for the server and $500 for each client. As many as 30 clients can connect via TCP/IP from any routed segment, according to IBM.

A new object collection capability enables customized network views. Instead of looking across the network or multiple screens for similar devices, the administrators responsible for them can monitor a single group icon.

New security options can limit access to grouped management objects and other NetView functions by administrator and time of day. Added tools allow remote staff or rotating support centers to handle management tasks.

"If I can grant access to more of my staff, then I'll want to group them so they can see just what they're responsible for," Spiewak said.

By filtering the myriad events that occur across the network and correlating them, common and repetitive chores that absorb NetView operators' time can be reduced.

"Anything to help our small staff will be greatly appreciated," Spiewak said. "I'd like to have problems handled the right way once, automatically."

Wetherington, for example, set up rules for NetView to watch certain file servers for frequent problems, such as low disk space, then take an action, such as notifying the appropriate systems managers. "Automation makes us faster and a lot more coordinated," Wetherington said. "We've already cut down on the number of staff involved in the support process."

Big Blue details strategic vistas for SystemView

By Steve Moore

IBM last week detailed the next incremental steps in its long-term strategy to fully integrate network and systems management functions under the SystemView umbrella.

The computer giant's SystemView Advance Team will help third-party developers link network and systems management applications and agent software to SystemView.

Also, new Systems-Level Manager (SLM) software will help distribute SystemView management functions that had been centralized.

Users applauded IBM's move toward integrated network and systems management. "I would be interested in hearing more about that, especially if it would reduce the amount of third-party software that we have to acquire and maintain," said Jim Ross, a senior software engineer at Grumman Data Systems, Inc. in Herndon, Va.

Analysts said IBM, so far, is simply enhancing its existing SystemView for AIX software and looked toward future object support.

The benefit of SLM software is that "it is an example of putting the intelligence out where the users are rather than bringing all [management] information back to a central console," said Dave Passmore, a principal consultant at Detisis, Inc. in Herndon, Va.

IDEA adds client/server flavor in its mainframe controllers. See page 65.

News Shorts

Justice Department, CA come to an agreement

The U.S. Department of Justice late last week reached an antitrust settlement with **Computer Associates International, Inc.** The deal allows the $1.7 billion purchase of **Legent Corp.** to proceed, but it also requires CA to license five overlapping Legent products — in mainframe security, tape management, disk management, job scheduling and automated operations — to other vendors to preserve competition. The accord also gives the Justice Department "sole discretion to accept or reject proposed licenses" to ensure they provide strong competition.

Du Pont 're-sources'

Instead of outsourcing its information systems activities, **Du Pont Co.** in Wilmington, Del., has hired **Andersen Consulting** in Chicago to completely "re-tool" approximately 1,400 Du Pont IS personnel. The three-year contract will use Andersen's methodology and development tools, Method/1 and Design/1. The contract will allow Du Pont to maintain control over the strategic direction of technology and build up its employees' skills.

SCSI challenger appears

IBM introduced the industry's first disk subsystem based on the Serial Storage Architecture (SSA), a high-speed interface vying to replace industry-standard SCSI technology. The 7133 accepts standard SCSI commands and costs the same as IBM's SCSI-based Unix array even though SSA outperforms SCSI by a 4-to-1 margin.

Prodigy tries again

Prodigy Services Co. in White Plains, N.Y., last week announced plans to reargue its defense in a $200 million libel suit brought by investment firm Stratton Oakmont, Inc. Last May, a New York judge ruled Prodigy was liable for defamatory statements made by a participant on the on-line service. This time, Prodigy will have a new lawyer — New York media specialist Martin Garbus — who will try some new legal tactics and arguments.

Year 2000 fixer-upper

Micro Focus, Inc. in Palo Alto, Calif., announced that it is offering **Challenge 2000**, a comprehensive package of software tools to help companies fix the problem of two-digit year fields, which in the year 2000 will show up as "00." Pricing starts at $3,000.

Intel hacker shackled

A contract employee at **Intel Corp.** in Portland, Ore., was convicted last week of three counts of computer crimes against the company. Randal Schwartz could receive 18 months in prison for setting up hidden Telnet gateways into the firewall-protected Intel network and for stealing password files. He claimed he was only testing security. Intel hopes to recover from Schwartz an estimated $60,000 spent cleaning up after him.

IBM ships DB2 upgrade

IBM started shipping major upgrades last week to its DB2 for OS/2 and DB2 for AIX databases. The new versions were built to manage data types other than row-and-column relational structures, such as audio, document and image files, IBM said. A single-user copy of DB2 for OS/2 Version 2 costs $368; server versions cost $1,499. DB2 for AIX costs $749 for a single-user license and $3,199 for a server license.

SHORT TAKES IBM said its board has authorized the buyback of up to $2.5 billion of its common stock, following a similar repurchase approved at the end of January.... **BellSouth Corp.** in Atlanta said it has developed a new technology called Cellemetry for sending very short data messages over existing cellular networks.... **Texas Instruments, Inc.** is sold out of computer memory chips through September, a top official said last week. The Dallas chip maker expects the market to remain tight through at least part of 1996. ... **Gateway 2000, Inc.** bounced back from its dismal second quarter in 1994. The North Sioux City, S.D., PC maker had profits of $34.8 million on sales of $766.4 million, up from a $3.8 million profit on sales of $616.5 million the year before.... Miami-based **Florida Power & Light Co.** plans to build several electric utility maintenance and management applications with $4 million worth of object-oriented tools and databases from **GemStone Systems, Inc.** in Beaverton, Ore., GemStone said last week.

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- 70 Mining/Construction/Petroleum/Refining/Agric.
- 80 Manufacturer of Computers, Computer-Related Systems or Peripherals
- 85 Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
- 90 Computer/Peripheral Dealer/Dist./ Retailer
- 95 Other_____ (Please Specify)

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- 22 Dir./Mgr. Network Sys. Data/Tele. Comm. LAN Mgr. /PC Mgr. Tech. Planning, Admin Sys.
- 23 Dir./Mgr. Sys. Development, Sys. Architecture
- 31 Programming Management, Software Developers
- 41 Engineering Scientific R&D Tech. Mgt.
- 80 Sys. Integrators/VARs/Consulting Mgt.

CORPORATE MANAGEMENT
- 11 President, Owner/Partner, General Mgr.
- 12 Vice President, Asst. VP
- 13 Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
- 51 Sales & Mktg. Management
- 70 Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
- 80 Information Centers/Libraries, Educators, Journalists, Students
- 90 Other Titled Personnel

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- (a) Solaris
- (b) Netware
- (c) OS/2
- (d) Unix
- (e) Mac OS
- (f) Windows NT
- (g) Windows
- (h) NeXTstep

App. Development Products ❑ Yes ❑ No

Networking Products ❑ Yes ❑ No

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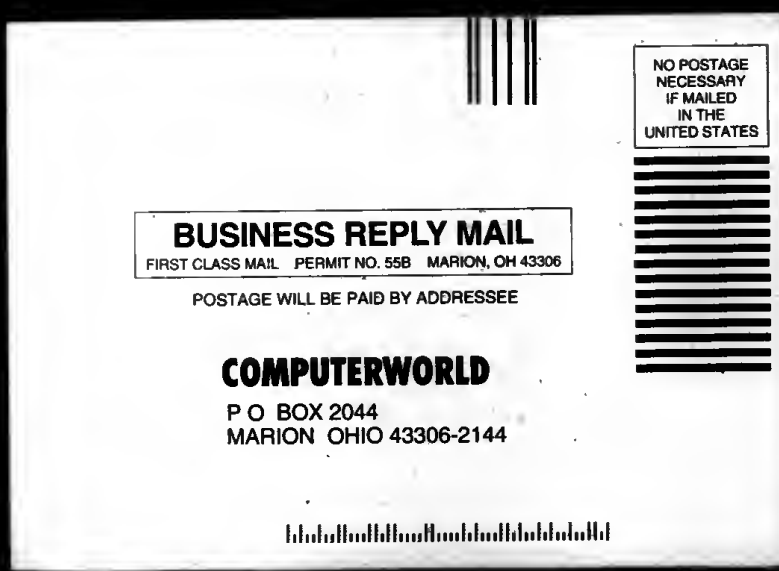
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EMC policy sparks resale value angst

By Craig Stedman

EMC Corp.'s policy of retaining ownership of the microcode in its mainframe disk arrays is bubbling to the surface as a concern for customers who may face resale hurdles.

EMC last week insisted that its requirement that the Symmetrix microcode be relicensed when an array is sold should not be a burden. But with EMC charging up to $15,000 to relicense, certify and install a used array, some used equipment dealers and Symmetrix customers said they are concerned that resale values could suffer.

"If I'm going to have a lesser residual value on their stuff in the long run, I'm not really sure I want to be in that situation," said Stan Johnson, director of MIS at Worldport LA in San Pedro, Calif.

Microcode controls a disk array and is considered the most important part of the product. Other mainframe disk vendors sell microcode as part of an array purchase, but EMC issues a nontransferable license to Symmetrix buyers.

John Egan, executive vice president of sales and marketing at EMC, sent a memo to company salespeople on June 28 exhorting them to "be our first line of defense" in defusing requests by prospective customers to have the microcode ownership clause removed from purchase agreements (see box).

The memo, obtained by *Computerworld*, included a script for answering questions about the potential impact on sales of used Symmetrix arrays.

To: Worldwide sales force
From: EMC management

One issue that is raised by our customers:
"If I can only use the [Symmetrix] software while I own the unit and I only have a nontransferable license to use the software, how can I sell the unit when I'm through using it?"

On June 1, the fees for relicensing, certifying and installing used Symmetrix arrays were set at $6,750 for the Symmetrix 4800 and $15,000 for the newer 5500 series, EMC confirmed. The charges apply to arrays sold by EMC or other vendors, said Craig Norman, manager of product marketing for enterprise systems at EMC in Hopkinton, Mass.

But the fees are "guidelines for the sales force," and sales managers are free to use "different interpretations" when following them, Norman said. That means the fees can be reduced in negotiations or increased to make a competing used Symmetrix bid more expensive, used equipment dealers charged.

That could enable EMC to weight competitive bids in favor of new Symmetrix arrays, they claimed. One dealer, who asked not to be identified, said EMC recently told a customer it would cost roughly $17,000 to relicense, certify and install a used Symmetrix 4800.

CDLA, an organization of computer leasing and remarketing firms based in Washington, said it is trying to set up a meeting with EMC to discuss the issue.

The situation could end up biting Symmetrix users "if you get to the point that you want to resell it and used dealers are saying they don't want to handle the stuff," said Louis Ebert, a senior business consultant at General Accident Insurance Co. of America in Philadelphia, an EMC customer site. "I'm not happy that we don't own the microcode, but I can look at it from both sides. I'm satisfied that the specific terms we have in our agreement enable us to get what we need out of [the deal]."

Storage Technology adds Escon to support its Iceberg disk array. See page 63.

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OS/2 **LAN Server**

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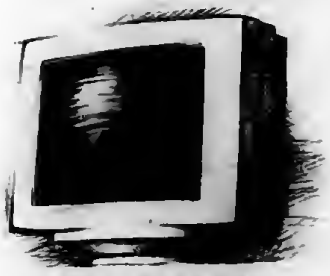

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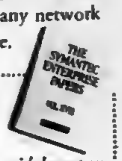

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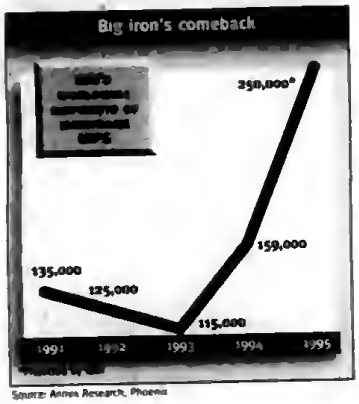
Want IBM's new big iron? Get in line

By Craig Stedman

■ IBM's new air-cooled mainframes are catching on more quickly than expected, and System/390 shipment forecasts have been ratcheted up as a result.

But this popularity has a downside for big iron buyers, who have to wait in long lines for delivery of the machines.

A second generation of the air-cooled 9672 R systems starts shipping today. However, IBM said its production capacity for this year is mostly sold out. Customers placing orders now won't get their systems within the three-month delivery period that IBM would like for the 9672 R models.



Source: Annex Research, Phoenix

The city of Los Angeles had hoped to get a seven-processor 9672 R in time to install it over Labor Day weekend. "But I don't think IBM is going to be able to cut me that kind of a deal unless they can pull off some magic," said Jack McRae, MVS systems and storage manager for the city.

Pending final approval from city budget officials, Los Angeles plans to use the air-cooled box to replace an old-style 3090 Model 400J, McRae said. It expects "a tremendous throughput increase" and big savings in floor space and power, cooling and maintenance costs.

But delivery probably isn't possible until late December or January, McRae said. "Our sales rep told us there was a very long queue," he said. "It's great for IBM, but I'd like to be able to get one" of the machines.

The 9672 R models should now overtake traditional water-cooled ES/9000s in MIPS shipments as early as the fourth quarter, said William Reedy, director of marketing at IBM's System/390 Division. That is one quarter sooner than IBM and analysts expected.

With the surge in demand, IBM expects to ship more than 100,000 MIPS of air-cooled capacity this year, Reedy said. He added that ES/9000 shipments should still max out at about 140,000 MIPS, yielding a combined total of 250,000 MIPS — up a whopping 57% from last year (see chart).

Air-cooled craze

Charlie Burns, an analyst at Gartner Group, Inc. in Stamford, Conn., said he had expected IBM's shipments this year to be more in the 225,000-MIPS range. But the higher forecast "seems realistic," and all of the extra sales appear to be coming from the air-cooled side, he said.

The 9672 R models initially were replacements for creaky systems such as the 3090, but some are now being bought as an alternative to upgrading more modern ES/9000s, Burns said. Like Unix systems and PCs, the air-cooled machines use CMOS processors that are much cheaper to buy and run than the ES/9000's emitter-coupled logic technology.

"The economics are so good that most customers are looking at a two-year payback or less," Burns said.

Insurance Services Office, Inc., a clearinghouse for insurance data in Pearl River, N.Y., was finalizing an order for a six-processor 9672 R last week. The nonprofit company was told it could get the system in early December "if we give them the order now," said Dick Fernandez, assistant vice president of computing services.

That fits with Insurance Services' installation schedule for the air-cooled machine, which also would replace a 3090 Model 400J. "But we don't typically expect to wait that long for a mainframe," Fernandez said. "Three months is the usual turnaround time."

IBM eventually wants to get 9672 R delivery times down to 90 days or less, Reedy said. The air-cooled machines take only about half as much time to build as ES/9000s because they use fewer — and less exotic — components.

Feds declare NT 'open system'; Unix takes a hit

By Gary H. Anthes and Jean S. Bozman

WASHINGTON

More choices for government computer users plus a billion-dollar market opportunity for Microsoft Corp.'s Windows NT systems are the likely results of a recent ruling by a federal contract appeals board.

The U.S. General Services Administration's (GSA) Board of Contract Appeals upheld a $188 million award by the U.S. Coast Guard to Unisys Corp. for workstations and servers running Windows NT. The Coast Guard had been using Unisys' proprietary CTOS operating system.

Losers in the ruling are Unix-based systems vendors, whose federal customers may no longer see Unix as the only path to open systems.

Other bidders had protested the Unisys award, saying the Coast Guard's bid solicitation effectively demanded Unix systems by specifying that the computers run a "Posix-compliant" operating system. Posix is a government standard for open systems and has generally been considered a prescription for Unix.

But after hearing testimony from a number of technical experts, the board ruled that NT meets Posix specifications — a set of application programming interfaces (API) intended to ensure portability of code (see story at right).

Big win

"This is a landmark decision," said Bob Dornan, a federal procurement expert and senior vice president at Federal Sources, Inc. in McLean, Va. "This has been Microsoft's whole strategy for a couple of years — to get NT accepted as the alternative to Unix."

Dornan said Microsoft could now credibly bid NT as an "open" system on some $4.3 billion in federal contracts coming up in the next 12 months.

"The fact that we now have new sources to meet our requirements is a good thing for the government," said Steve Meltzer, director of GSA's Federal Computer Acquisition Center, which managed the Coast Guard procurement. He said the increased competition for federal business would spur innovation and lower prices.

Unix systems vendors took a darker view. They insisted that Posix compliance alone does not guarantee all the benefits normally associated with open systems. Those benefits would include file compatibility among many types of Unix systems and a high degree of network connectivity for enterprise applications.

"The use of Posix to justify NT as an open system is one of the most artful uses of a phrase I have ever heard," said Eric Schmidt, chief technology officer at Sun Microsystems, Inc. He argued that since the Windows NT operating system is supplied exclusively by Microsoft, it is a "closed system." In contrast, Unix users can buy file-compatible Unix System 5.4 code from many Unix suppliers.

Tony Iams, a research analyst at D. H. Brown Associates, Inc. in Port Chester, N.Y., agreed that Posix alone does not satisfy "what is traditionally understood as open systems requirements." However, Iams noted that NT is quite portable from a hardware point of view since the "shrink-wrapped version can run on a variety of platforms, including Intel Corp.'s chip and Digital Equipment Corp.'s Alpha RISC chip.

Microsoft sees the decision as a victory. "The ability of NT to host Posix APIs, other operating systems' APIs and interoperability to other systems were all questioned during the course of the protest," said Bob Kruger, director of technology marketing and standards for Microsoft. "The court validated the open systems strategy and the functional architecture of Windows NT."

Aboard the S.S. Posix

When the U.S. Coast Guard set sail recently for open systems waters, it said its new computers must be "Posix-compliant."

Posix is a family of standards developed as a way to standardize different versions of Unix.

The Coast Guard's award to Unisys sought compliance with some 20 Posix standards, including the following:

- **Posix.1: Defines an API to the operating system and ensures portability of C source code.**
- **Posix.2: Defines "shells and utilities," or tools built using the Posix.1 API.**
- **Posix.4: Defines real-time extensions to Posix.1.**

NT consists of a "kernel" and multiple subsystems. Under NT, a user can simultaneously run applications written for the IBM OS/2 API, Microsoft Win32 API and the Posix.1 API.

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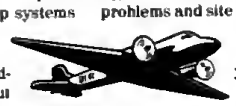
FAA's reliance on ancient backup systems raises concern

By Tim Ouellette and Steve Moore

■ It's going to start looking like a conga line up in the skies if the Federal Aviation Administration's air traffic control systems keep failing.

For example, the aging computer systems at the Air Route Traffic Control Center in Aurora, Ill., which manages air traffic in six Midwestern states, broke down last week. Critical operations were forced onto an even more fragile backup system, and planes backed up in the skies and on the runway at Chicago's O'Hare International Airport as controllers broadened the air space between planes for extra safety.

Though there haven't been any accidents due to similar computer meltdowns like this at other FAA facilities around the country, the aviation agency is under renewed pressure to update its creaky 30-year-old backup systems. This is because the FAA has been going through a formal air traffic control system modernization effort since 1981 but still doesn't expect final delivery of the first of 20 systems until 1998.



As a result, Senator Paul Simon (D-Ill.) is requesting emergency funding to provide an emergency replacement system for the Chicago area until the completely revamped systems are installed.

Racing against time

One General Accounting Office (GAO) official said the FAA has had a lot of trouble acquiring advanced technical equipment, mainly because of very long planning cycles that don't account for the rapid changes in computer technology. A GAO report in May cited software problems and site preparation delays as other reasons various projects haven't yet gotten off the ground.

Loral Corp.'s Air Traffic Division in Rockville, Ill., currently owns the contract to revamp the air traffic control system at places such as Aurora. The original contractor in 1988, IBM, sold off the division performing the effort before any of its mainframes were replaced.

"The old 9020E complexes [clusters of IBM 360 mainframes] now used for display processing will go away," an FAA spokesman said. The next-generation system will be a distributed computing environment in which each air traffic controller will have a Unix workstation, likely a specially modified IBM RS/6000, rather than a dumb terminal.

Installation plans

The Loral system, called the Display System Replacement, will be installed first in Seattle in 1998 and then in the other 19 centers. The final system installation is planned for Boston in 2000. The company will also develop a Tower Control Computer Complex for airport tower control rooms.

While the new FAA system will be a distributed computing environment, mainframe-based central processing will continue, according to the FAA spokesman.

It will "take the data input that comes from our [various regional] facilities and direct it to the appropriate controller workstation, where all [additional] processing will be done at the workstation level," the spokesman said. Workstations will communicate with one another through a new communications system.

NASDAQ picks Sequent machines to avoid last year's crashes. See page 64.

Borland on a roll

CONTINUED FROM COVER 1

build applications that automatically qualify for Microsoft's Windows 95 logo.

Borland officials also confirmed that the tool will support use of industry-standard software components called OLE controls (OCX); allow developers to create .obj files, which are also used in Borland's C++ tool set; and include components that support new features in the Borland Database Engine, which are also slated to be announced next week.

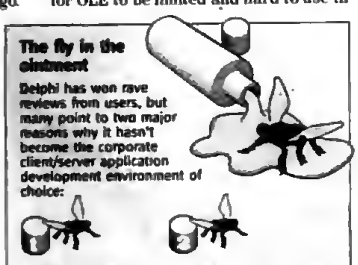
Hard work ahead

"Borland has serious challenges to address with Delphi32," said Keith Floyd, a developer using Delphi at a major U.S. property and casualty insurance company who is looking forward to working in a 32-bit environment.

In particular, it will be very important for the tool to offer complete support for Microsoft's OLE object interface standard, he said. He has found the support for OLE to be limited and hard to use in

The fly in the ointment

Delphi has won rave reviews from users, but many point to two major reasons why it hasn't become the corporate client/server application development environment of choice:



1. It lacks an easy way to make database connections, like PowerBuilder's DataWindows does.
2. Borland's perceived lack of financial stability makes customers wary of investing time and training in a Borland tool.

16-bit Delphi and hopes it will be easy to both use and create OCXs in Delphi32.

Delphi users also want Borland to make it easier to connect to databases and create database views. Many developers interviewed who have switched to Delphi from Powersoft Corp.'s PowerBuilder said they miss the latter's DataWindows and wish Borland would provide a similar component.

Even so, in the competitive desktop application development tool marketplace, Delphi has generated a lot of sales momentum. Since its release, Delphi has been taking market share from competitors such as PowerBuilder and Microsoft's Visual Basic, according to estimates by Evan Quinn, an analyst at International Data Corp. in Framingham, Mass.

At a large North Carolina corporation, Visual Basic was firmly entrenched until developers saw a demonstration of Delphi, said consultant Jim MacDaniels, who is currently leading a software development project at the company.

A beta tester for Visual Basic 4.0, MacDaniels said he was very disappointed with the upcoming 32-bit version of the Microsoft product: "Compared to Delphi, it was brain-dead," he said.

Pluses for the Borland product include the faster performance of Delphi applications and superior extensibility of its many components due to fuller support of object orientation, according to MacDaniels.

Application tools vendors ready Windows 95 wares. See page 71.

Comeback trail

Borland's stock climbed back onto the most actively traded lists last week and gained 13% on news of its first-quarter financials. In the process, Borland left a wake of surprised equities analysts, who had predicted a 3 cent per share loss. Instead, Borland posted a modest 10 cent per share profit.

But rumors persist that Novell, Inc. is negotiating to buy the company. Recent reports claim that agreement on share price remains an obstacle.

Compared with the first quarter a year ago, Borland's profits fell from $61.3 million to $2.8 million. But the company said that without the one-time sell-off of its Quattro Pro spreadsheet and other products, it would have shown an operating loss in that period last year. Net revenue dropped from $69 million to $53.7 million.

Given that Borland's return to operating profitability followed six quarters of losses, analysts said they don't see a recovery in full swing.

"They've had consistently poor earnings and have been slashing their workforce," said Rick O'Herron, an analyst at Forrester Research, Inc. in Cambridge, Mass. Borland has reduced its worldwide workforce by 650, or 40%, in recent restructuring.

"Delphi will be a good portion of their business, but it won't bail" them out, he said. — *Elizabeth Heichler*

Novell on target

CONTINUED FROM COVER 1

Meanwhile, two of the initial alpha users of the Windows 95 client — code-named NIOS (NetWare I/O Subsystem) — gave it high praise.

Customers reported that the first code of the NetWare Client Requester for Windows 95 is a full-featured release with fast file transfer speeds and no major glitches so far.

Good impression

A Windows 95 MIS project manager at one of the Big 3 automakers in Dearborn, Mich., said the automaker was so impressed with the NetWare Requester that it scrapped plans to use the corresponding Microsoft product — NetWare Redirector for Windows 95.

"We're currently using Novell's Windows 95 client in our NetWare 4 TCP/IP environment. The performance has been exceptional, and due to this successful pilot, we plan to roll out Novell's NetWare Client 32 to all of our NetWare 4 IP sites using Windows 95 PCs," the project manager said. "I can browse the NetWare Directory Services tree quickly and logically, and the file transfer speeds are amazingly fast."

Kiran Movva, base technologist for networks at Chevron Information Technology Co. in San Ramon, Calif., agreed. According to Movva, the alpha version of the NetWare Client Requester for Windows 95 is "working really well" at his company.

"It installed pretty easily, and we've encountered no problems so far," Movva said. "My big caveat at this point is that the connectivity [to the Windows 95 PCs] isn't entirely seamless in the alpha version."

Engineering sources within Novell said the company will deliver "transparent connectivity between Windows 95 desktops and NetWare file servers when NIOS ships in the fall."

Business units, IS search for balance

By Joseph Maglitta

Recent revamps at Corning, Inc., RJR Nabisco, Inc. and several other major corporations seem to tip the scales of technology power toward business units.

A major information systems shakeup at Corning eliminated Chief Information Officer Harvey R. Shrednick's job, slashed central IS and created a corporate technology council. It also embedded most of the firm's 430 IS staffers into company business units.

Don't look for a runaway trend, though. Most senior executives say they favor a balance between centralized and decentralized technology operations.

Corning retiree *Harvey R. Shrednick says business units there wanted to do their own thing*

In *Computerworld*'s recent CEO/CFO survey, for example, 66% of the 200 executives surveyed preferred a combination of approaches to maximize IS investments [CW, June 12]. Only 7% voted for decentralized IS.

But industry analysts interviewed last week said the explosion of client/server and groupware installations is complicating choices about how best to balance power. They said more firms are opting for smaller, better-focused, centralized IS departments.

"The lightly staffed CIO office is certainly a trend," said Jim Wehber, president of Omicron, a Mountain Lakes, N.J., consortium of 105 large companies.

Doing their own thing

In recent months, Morgan Stanley & Co., Nike, Inc., American Standard, Inc. and several others have all reorganized IS. Although individual approaches differ, all placed more IS resources and autonomy with business units. At Carrier Corp., for example, senior IS managers now report to the chief executive of product groups or businesses, according to vice president of IS John Owens.

"There are a lot of new business division and unit managers who see the value of investing in information technology and want to take more ownership," said Rick Swanborg, managing director of Tradewinds, a Cambridge, Mass., consultancy. "Oftentimes they will see the CIO as an impediment to that ownership or governance."

At Corning, "business units really wanted to do their own thing," Shrednick said. The new president of the Society for Information Management said that "by mutual agreement" he took early retirement after 10 years at Corning.

Similarly, Dick Brightman, corporate IS director at RJR Nabisco, found himself jobless earlier this year after the New York firm pushed numerous functions, including IS, investor relations, controller and foreign exchange, into its Nabisco and R. J. Reynolds units.

"The decentralization of activities shrunk our corporate office dramatically, so there wasn't the need for an IS operation there," Brightman explained. All that remains of corporate IS is a small end-user support group, he added.

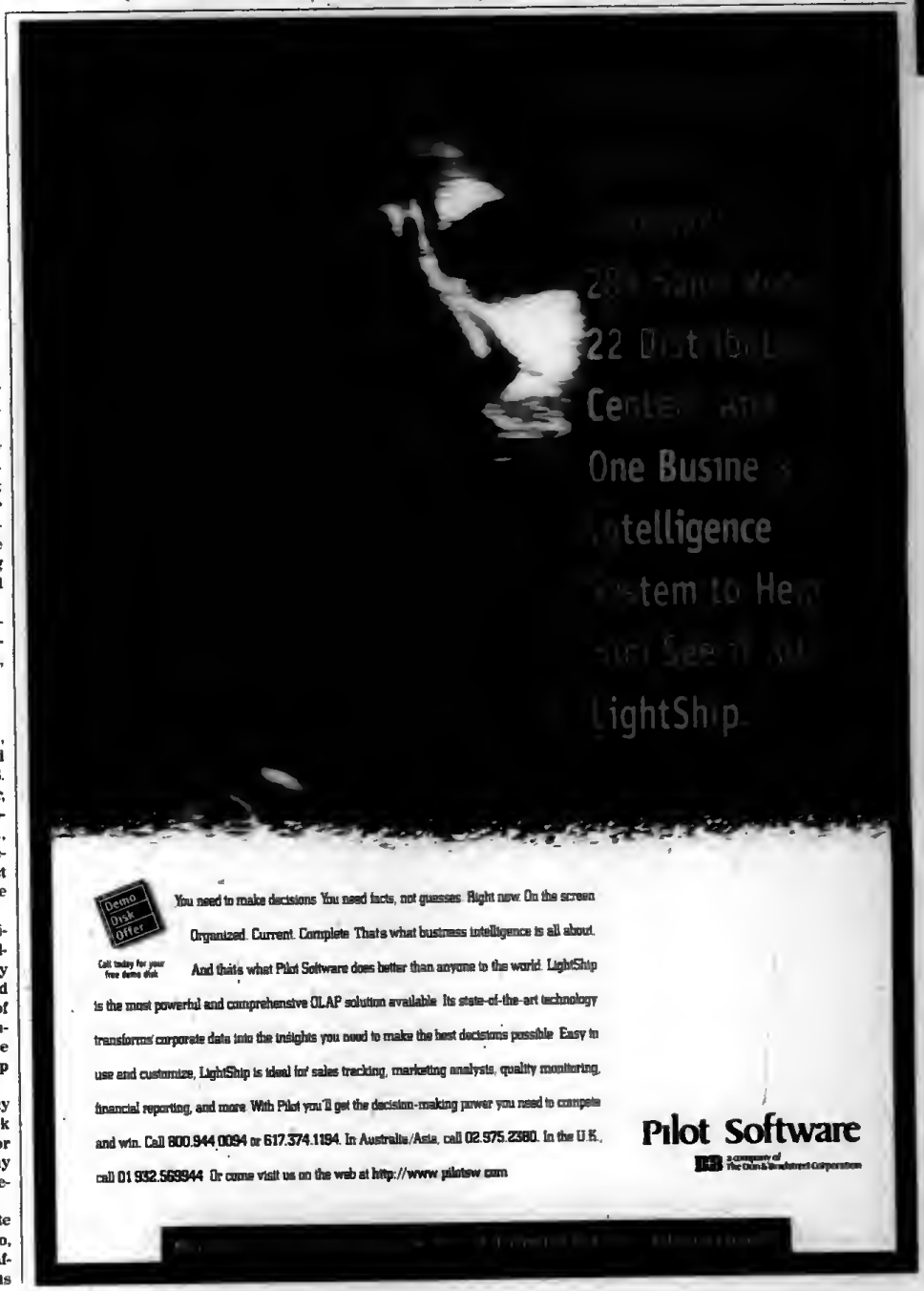
Morgan Stanley and Nike also chose end-user department heads to take over as the highest-ranking IS officer.

Consultants and IS leaders noted that shedding application development, telecommunications, data centers and other work-a-day areas can have a positive side. It lets CIOs focus on more strategic roles such as managing portfolio, vendor, architecture and re-engineering issues.

Several consultants also noted that chief executive officers want someone responsible for coordinating worldwide electronic-mail networks, standards and shared services.

"You still need an [IS] person in a multidivision company to lash those divisions together," Brightman said.

Senior editor Julia King contributed to this report.



Expo underscores commitment to Power Macintosh

By Lisa Picarille

Attendees of next week's Macworld Exposition in Boston will learn how Apple Computer, Inc. spells the future.

Several themes will be highlighted:

Power Macintosh

Apple will unveil three low-cost PowerPC 601-based Power Macintoshes. Two, code-named Catalyst, are part of Apple's 7200 series. The 601/75 will cost $1,400, and the 601/90 will sell for $1,600. Both systems have three Peripheral Component Interconnect (PCI) slots and include 8M bytes of RAM, expandable to 256M bytes.

The third system, code-named Nitro, has a 120-MHz PowerPC 604 processor and is the first Power Macintosh 8500. Nitro also has three PCI slots and is priced at $3,400.

OpenDoc

There will be OpenDoc demonstrations where show-goers can get their hands on OpenDoc component software from a number of developers, including Apple and Novell, Inc.

The forthcoming Copland operating system

Expect Apple to detail the progress of Copland, which is due out in mid-1996. The next generation of the Mac OS will feature a more customizable interface and the ability to support multiple desktops. It will be 95% native Power Macintosh code. Taligent, Inc. is expected to be among those demonstrating applications running on it.

The Internet

The Cupertino, Calif., company will show off a new version of its EWorld on-line service that contains a built-in World Wide Web browser. Attendees will also be updated on Cyberdog, Apple's technology for establishing links between documents and data on the Web. Cyberdog is due out early next year.

Clones

Radius, Inc. will unveil a Power Macintosh clone that will ship this week. The Sunnyvale, Calif., company will also demonstrate its high-end Power Macintosh Radius System 110 for publishing professionals, which is due out in September.

Radius will also demonstrate a product that was announced earlier this month — a high-end graphics monitor called the Radius PressView 21 SR Color Reference Display System.

Clone rival DayStar Digital, Inc. will tout Genesis, its PowerPC 601-based Power Macintosh clone, along with Genesis MP, a multiprocessing Power Macintosh clone that supports up to four processors. The Flowery Branch, Ga.-based company expects to ship those by the fall.

Other new products

Apple will give sneak previews of a full update to its Newton personal digital assistant operating system, according to sources briefed by the company.

Wall Data, Inc. will announce Mac Rumba for IBM's AS/400 and Mac Rumba for the mainframe. These Macintosh client applications let users access and transfer data from the AS/400 or mainframe. The Mac Rumba line was formerly known as SNA.ps before the Campbell, Calif., company acquired it from Apple last year. Mac Rumba for the AS/400 is due out at the end of August, and Mac Rumba for the Mainframe is slated to ship in November, company officials confirmed.

An updated version of WordPerfect for the Macintosh debuts. See page 39.

Oracle fires salvo at Microsoft with development tool launch

Object-oriented product aimed at Visual Basic

By Lisa Picarille

Power Objects and power objectives. It was a little of both last week as Oracle Corp. launched an object-oriented, client/server development tool aimed squarely at Microsoft Corp.'s Visual Basic, alongside marketing partners Apple Computer, Inc. and IBM.

"Oracle is trying to fire a shot across Visual Basic's bow, and IBM and Apple are trying to get more development tools to run on their minority share operating systems," said David Card, an analyst at International Data Corp., a market research firm in Mountain View, Calif.

> This is the first time Apple has struck a deal to resell Windows desktop applications

"This makes sense for all involved if Oracle can position Power Objects as a development tool for Notes or OpenDoc. Then they can go after [Microsoft's] whole OLE, [Visual Basic] component strategy," he said.

Power Objects is a visual development kit that uses the Basic programming language and drag-and-drop technology to rapidly build simple client/server applications. The product is a key part of Oracle's Workgroup/2000 family and will initially run on Windows 3.1 and Apple Computer, Inc.'s Mac OS, the next version of Apple's System 7 operating system.

OS/2 and native Power Macintosh versions are due out in 90 days. Oracle has not announced a release date for Power Objects running on Windows NT.

Apple is taking a very active role with Power Objects. The Cupertino, Calif.-based computer maker will manufacture and resell both Windows and Macintosh versions of the products. The move gives Apple its first cross-platform client/server development tool and a potential boost to its image with large businesses.

"This is my weekly obligatory visit to say that Apple is still in the business market," quipped David Nagel, Apple's senior vice president of worldwide research and development.

For IBM's part, the Armonk, N.Y.-based behemoth hopes that hooking up with Oracle will boost sales of its OS/2 operating system, which to date has failed to attract large numbers of major software developers.

Both Apple and IBM are trying to stave off the threat of Microsoft's Windows 95 by emphasizing the openness of their respective platforms and supporting products from multiple vendors.

"I can't imagine the world of client/server computing reduced to two products — Microsoft Office and Microsoft BackOffice," said John W. Thompson, an IBM general manager.

Merrill Lynch bets on Sybase in $10M revamp

25,000 users to move to graphical systems at financial services giant

By Kim S. Nash

Merrill Lynch & Co. plans to start testing by year's end the first phase of a large, multiyear information systems revamp designed to give its financial analysts better, quicker, deeper customer data, company officials disclosed last week.

The linchpin of the project is Trusted Global Advisor (TGA). It is a set of mission-critical applications that will provide detailed information about the firm's retail brokerage customers, as well as various types of stock market, mutual fund and other financial data, to Merrill Lynch staff across the U.S.

Goals for TGA, which is scheduled to be fully deployed by 1998, include the following:

- Replace character-based customer service systems with graphical versions for 25,000 users in 600 U.S. offices.
- Install or upgrade LANs in those U.S. offices.
- Build gateways to link TGA to the company's mainframe systems.

According to two sources close to the project, the deal is valued at more than $10 million for Sybase, Inc., which Merrill Lynch chose to provide database and related software and consulting services.

Merrill Lynch officials declined to comment on the financial terms of the pact. However, they did acknowledge that some of the work they want to do is beyond the capabilities of today's products, even the Sybase database.

Merrill Lynch's Ritch Gaiti: *Sybase's 'skin is in the game'*

For example, the financial services company has scaled back ambitious plans to distribute and replicate its many gigabytes of customer information to all 600 locations.

"People are telling us that Sybase doesn't scale, but our architecture [accounts for that]," said Cynthia Wilson, director of enterprise information management and technology.

Instead of building a few huge System 10 databases, Merrill Lynch plans to create several smaller ones to manage specific tasks, Wilson said.

As technology advances, the brokerage envisions moving more data out to all its locations, Wilson said.

Sybase's largest customer

Sybase's willingness to let Merrill Lynch, now said to be the database maker's largest customer, guide future product direction was key to closing the deal, said Ritch Gaiti, director of advanced office systems and technology at Merrill Lynch's Princeton, N.J., office.

Product tweaks and new features suggested by the company will receive special consideration by Sybase engineers, Gaiti explained. That dedication impressed the brokerage.

"[Sybase's] skin is in the game," Gaiti said.

Oracle Corp., the other database contender for the contract, was reluctant to let Merrill Lynch have as much influence, Wilson said.

We're Not Going To Say Anything Critical About RAMAC Storage.

"Additional evidence that RAMAC faces a tough competitive environment includes increased customer willingness to trade-in RAMAC systems for EMC Symmetrix systems."
- PaineWebber, 3/15/95

"The days when IBM could argue that users put their most important data on IBM DASD are clearly on the wane."
- Gartner Group, 4/5/95

"IBM's RAMAC: The Emperor Has No Clothes...IBM has ceded its leadership role to leaner, more aggressive competitors."
- META Group, Inc, 4/7/95

"Right now we view RAMAC as a 'pea shooter' compared to EMC's 'howitzer' in terms of sheer power and capacity."
- Smith Barney, 3/24/95

"We have already heard of used RAMAC machines...unusual for a new product as customers switch to EMC."
- Alex Brown, 3/1/95

"It would be technically feasible to let the existing RAMAC devices plug into Seastar, but IBM decided that would eat up too much money at a time when its storage workforce is being reduced."
- Computerworld, 5/8/95

"One member found that RAMAC was about 40 percent slower than the EMC devices."
- NOREX Newsletter, 3/95

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Workgroup hub offers Web management option

By Patrick Dryden

Starting this week, Thomas-Conrad Corp. will tap the Internet as a remote management resource for future hubs and switches by introducing a module for its most recent hub.

The management processor for the 24-port 100VG-AnyLAN hub enables monitoring and configuration via the World Wide Web. This option, called WebCheck, opens basic support to staffers running graphical browser interfaces on a wide variety of systems.

Central administrators can also manage the hub fully via the Simple Network Management Protocol (SNMP). They can interact with the hub from a standard enterprise network management console or from Sectra, the company's Windows-based alternative.

"Since workgroups are managed by less experienced staff than those watching the corporate backbone, the goal is to simplify first-level training," said Billy Cox, product development director at Thomas-Conrad in Austin, Texas.

While WebCheck offers a graphical display of hub status and port statistics for initial configuration and trouble-shooting, "you still need an SNMP console to get deeper into management from a corporate view," Cox said.

Web spread

First-level supporters can check Web-enabled devices without requiring an expensive, complicated management console.

In May, Tribe Computer Works started the Web management trend. The Emeryville, Calif., company embedded Web server support in a branch-office router to ease direct monitoring and enable hot links to its own support group.

Although Tribe offered its software to other vendors, Thomas-Conrad had a homegrown version under way for hubs, the first being the 100VG-AnyLAN model.

Price reductions taking effect this week drop the cost per managed port to $170, the lowest in the market for 100VG-AnyLAN workgroups, according to Cox.

Hubba, hubba

Thomas-Conrad Corp. will reduce the price of its 100VG-AnyLAN hub and adapters this week, citing increased demand for building 100M bit/sec. workgroups

Product	Price
24-port hub	$2,969 (down 17%)
Hub management card	$950 (new)
EISA adapter	$260 (down 22%)
ISA adapter	$225 (unchanged)

Price isn't as important as management flexibility to Keith Sherk, senior technical service representative at Siemens Electric in Toronto. His LAN support group is testing 100M bit/sec. workgroups — both 100VG-AnyLAN and 100Base-T — for possible rollout to customers across Canada.

"Some of our 40 offices are all the way up in the Yukon, so I'd rather not have to fly out there to fix LANs," Sherk said. "We like the option of running Thomas-Conrad's software or Novell's ManageWise console. We weren't expecting the Web choice, too."

The SNMP Management Processor costs $950 and includes the Web server software and Management Information Base software for supporting SNMP consoles. The hub costs $2,969 and includes the software module supporting Sectra Management System for Windows, which costs $895.

"This is just the beginning," Cox said. "Expect this management suite to be part of every product" from Thomas-Conrad.

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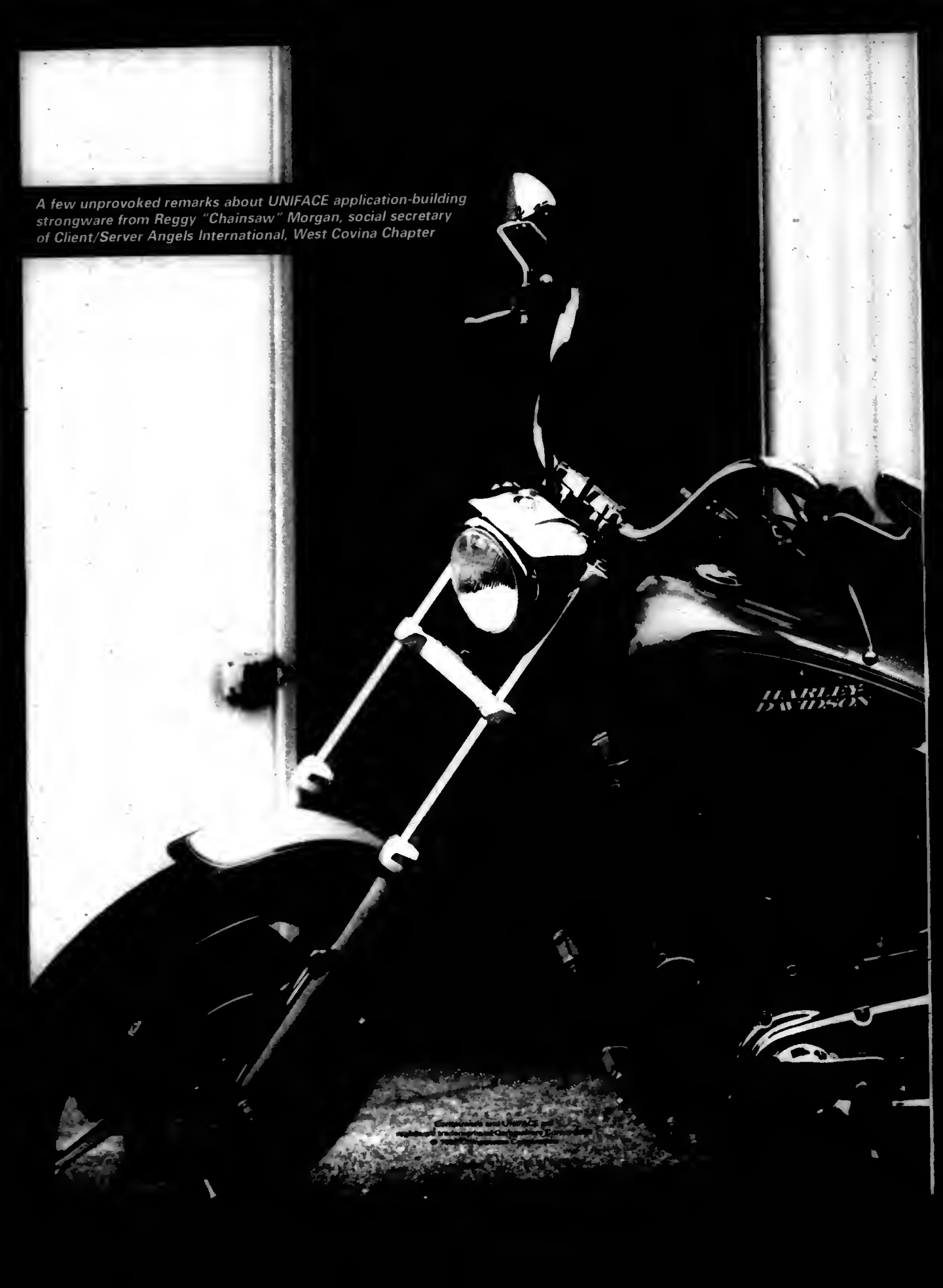
A few unprovoked remarks about UNIFACE application-building strongware from Reggy "Chainsaw" Morgan, social secretary of Client/Server Angels International, West Covina Chapter
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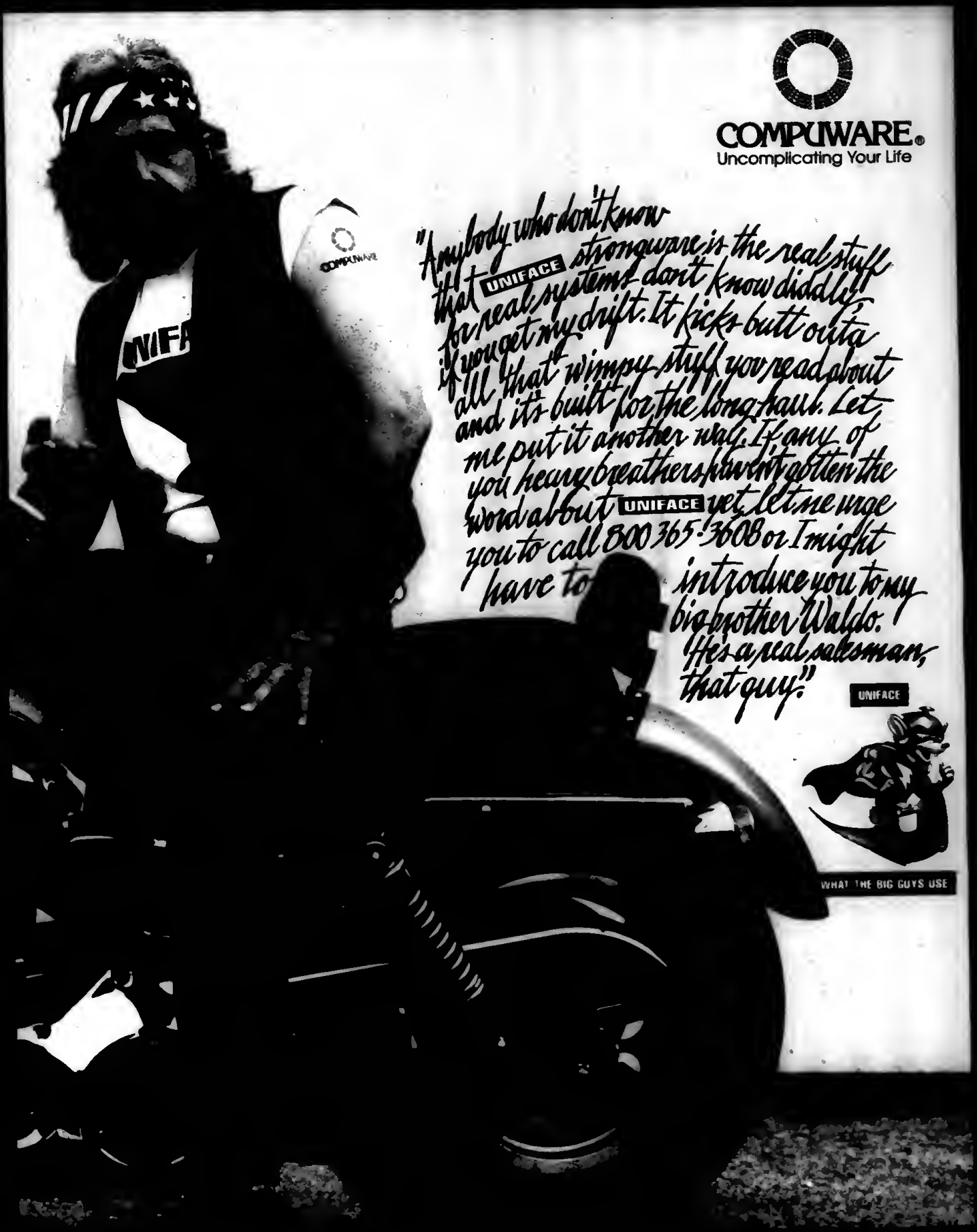
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WHAT THE BIG GUYS USE

Client/server outsourcing catches on

Conference focuses on real-world experiences

By Julia King

Babson College is among the growing number of organizations looking to selectively farm out construction and maintenance of complex client/server infrastructures

The Babson Park, Mass., school has outsourced the design and deployment of a campuswide network to support, among other things, a client/server-based data warehouse application. This, in turn, has freed up internal information systems staffers to focus on building and customizing business applications.

Deciding which client/server components should be outsourced is one of the themes at Hurwitz Consulting Group, Inc.'s industry conference "Scaling Walls: Matching Business Requirements to Client/Server Applications Development," which begins Aug. 7 in Cambridge, Mass.

"In the old days, before distributed computing, infrastructure wasn't an issue because all of the components were embedded as part of a system," said Judith Hurwitz, president of the Newton, Mass., consulting group.

Hurwitz now ranks infrastructure investments as one of the top issues facing IS managers migrating to client/server environments.

Increasingly, she said, outsiders are being called in to handle specialized tasks ranging from building networks to developing the underlying messaging services that enable client/server applications to communicate across an enterprise.

Skill quest

At the heart of this trend is a drive to increase the return on client/server investments. Other factors are a lack of in-house client/server technical expertise and an ever-narrowing focus on core business functions.

At Babson, for example, IS staffers are concentrating on learning the intricacies of middleware, a set of software skills that are best developed and maintained in-house, said Richard Kesner, chief information officer at the college.

"This is because middleware is so intimately integrated with the business," he explained. "If you grow these skills yourself, it takes time, but that is where your value-add is. Applications are generic, but middleware is what dictates how you use them and integrate them into your workflow."

Object-oriented components are another fast-growing piece of the client/server market. Managers from two companies that have already adopted the technology — Pan Canadian Ltd. and Skyway Freight Systems, Inc. — will discuss their implementations at the Hurwitz conference.

Outsourcing object development is another alternative. "Building and maintaining an object-oriented infrastructure is not within most companies' core business domain," said Robert Sturgis, director of technology at The Technical Resource Connection, a systems integrator and outsourcer in Tampa, Fla.

Upward spiral

Hurwitz Consulting Group forecasts that the market for high-end client/server consulting and implementation services will reach $10 billion by 2000 and that between 30% and 40% of this market will be for outsourcing services.

A client/server system streamlines the car selling business. See page 47.

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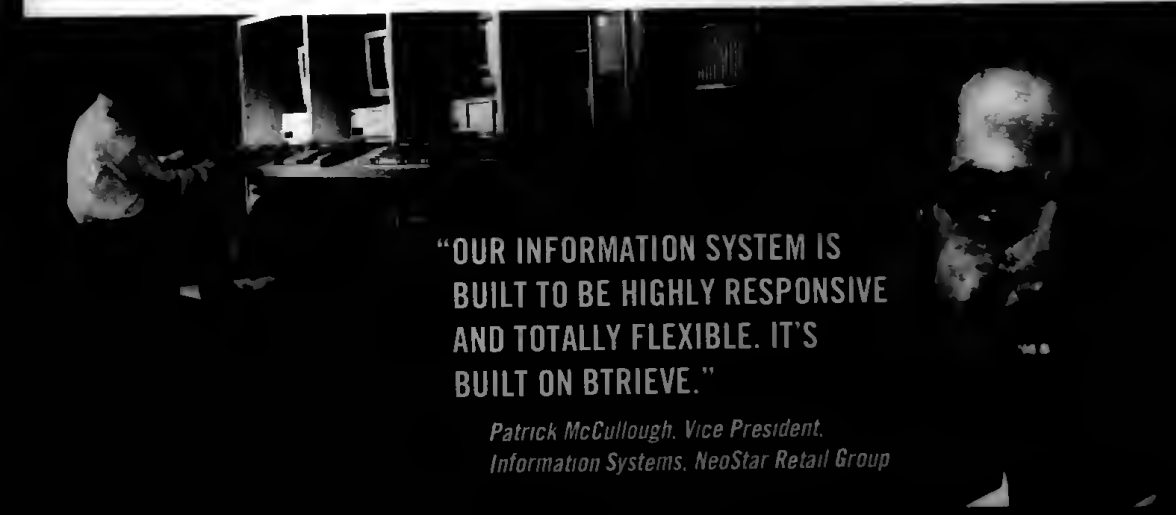

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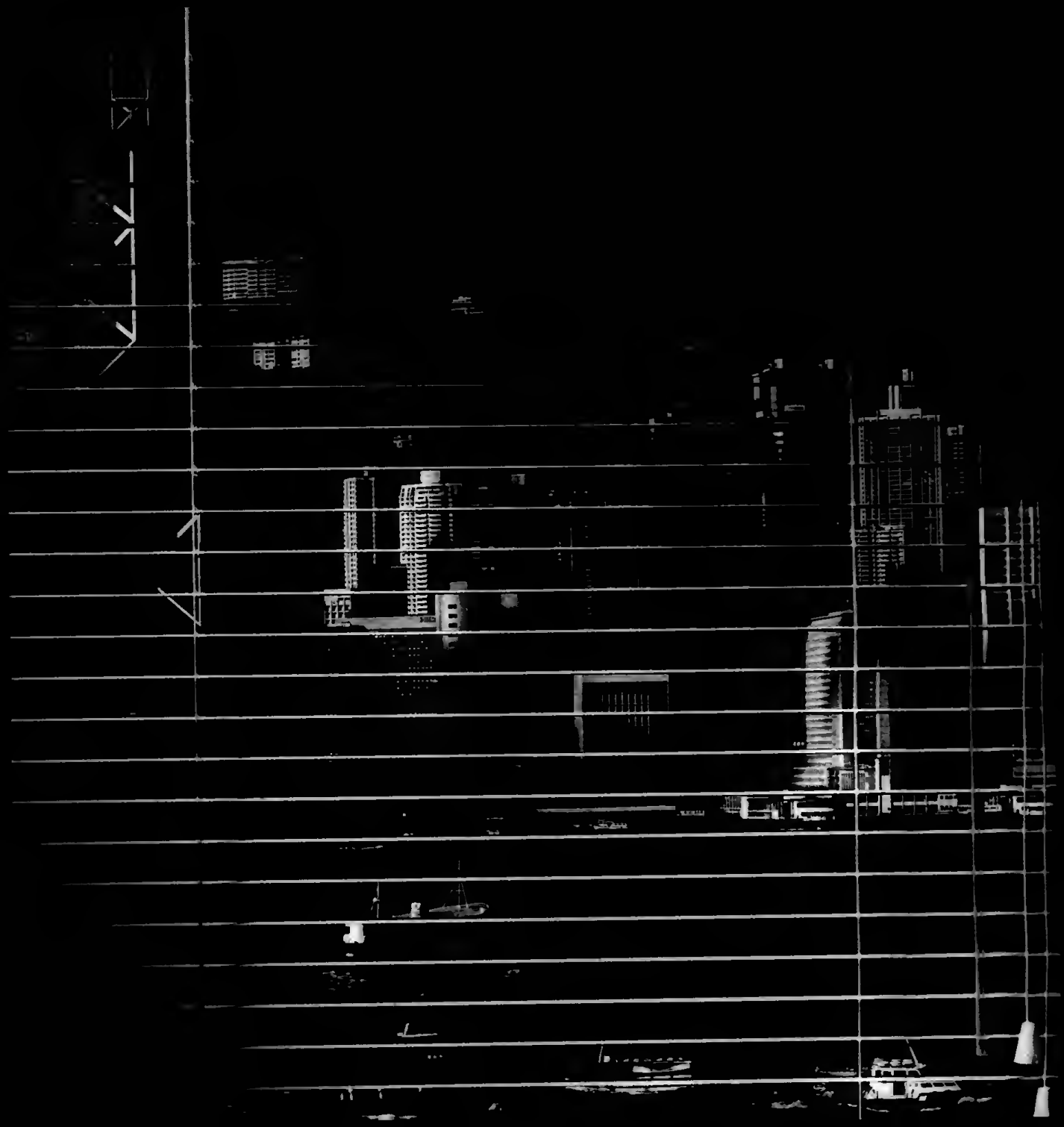

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White House snubs IS reform bill

By Gary H Anthes
WASHINGTON

"Thanks, but no thanks." That was the White House response last week to a legislative proposal that it assume responsibility for federal systems procurement and create the new job of Chief Information Officer of the U.S.

Confusion rules

"The best I can say in defense of the existing computer systems chaos is that it is as confusing and intractable to potential adversaries as it is to government officials and systems users."
— *Paul A. Strassmann, National Defense University*

The draft legislation by Sen. William S. Cohen (R-Maine) is intended to reform the way the government acquires information technology. But the Office of Management and Budget (OMB) said Cohen's bill would place too much management responsibility at a level too far from systems acquisition and use.

"The [Information Technology Reform Act] continues a model of central micromanagement rather than one in which agencies take responsibility for their systems," said John A. Koskinen, OMB deputy director for management, at a congressional hearing on the subject. "The lengthy assignment of duties to the CIO would undermine, not enhance, accountability of agencies for [their information systems] management."

Koskinen also said the OMB has neither the staff nor the institutional charter to take on the kinds of operational chores contemplated in the Cohen bill.

The bill, introduced last month, would do three more things: repeal the Brooks Act, a 30-year-old legal framework for federal computer purchases; eliminate the General Services Administration's (GSA) contract protest board; and transfer oversight authority for computer purchases from the GSA to the OMB [CW, June 26].

Federal IS experts testifying at the hearing said they were underwhelmed by the national CIO idea. Renato A. Di Pentima, who retired last month from his post as deputy commissioner for systems at the U.S. Social Security Administration, said, "At the national level, such a position could lead to large staffs, overcentralization and reinstitution of the multiple approval-level gridlock that the legislation is trying to reduce."

The bill merely creates a new bureaucratic layer — the CIO at OMB — while removing another layer — the Brooks Act oversight at GSA," said GSA Administrator Roger W. Johnson. "I believe that a more effective management solution would emphasize the responsibilities in each agency."

Lack of security

Sharply criticizing the Cohen bill for its failure to make information security a top priority of the national CIO was Paul A. Strassmann, the Pentagon's former director of defense information.

"The act contains an extensive section that deals with the maintenance of detailed records about contractor performance," Strassmann said. "[But] the damage that can be inflicted by a single well-placed info-terrorist attack on a critical government system can exceed the cost of contractor incompetence by a large multiplier."

Strassmann further warned that as the government consolidates, standardizes and outsources systems, those systems become even more vulnerable to attack. "There is a clear and present danger to the security of the U.S.," said Strassmann, now a visiting professor of information warfare at the National Defense University here. "It is just a matter of time before crippling threats to the information integrity of the federal government will take place."

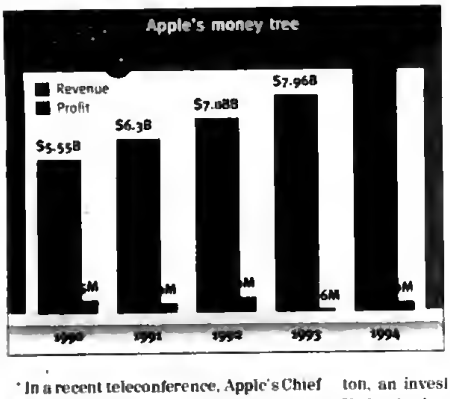
Although the U.S. Department of Defense would be largely exempt from the provisions of the Cohen bill, the Defense Department took issue with its promise to automatically terminate projects that exceed certain cost overruns or performance shortfalls. "It is not reasonable to mandate strict adherence to inexact estimates," said Colleen A. Preston, deputy undersecretary of defense for acquisition reform.

Fixing Apple backlogs key to fruitful future

By Lisa Picarille

Apple Computer, Inc. may have posted lower than expected earnings and revenue for its third fiscal quarter, but financial analysts say they are bullish on the company provided Apple resolves its ongoing supply problems.

Those supply problems, along with a $127 million restructuring charge, caused Apple to report profits 25% lower than expected. This created a backlog of orders that Apple was unable to fill.



In a recent teleconference, Apple's Chief Financial Officer Joe Graziano outlined a variety of problems that he said created the $200 million backlog and decreased Apple's unit growth rate by 1% to 5%. These include the following:

- Manufacturing problems with printed circuit boards for Apple's 5200 series.
- A slightly lower than expected availability of 604 PowerPC chips, which held back ramped-up production of Apple's 9500 series of Power Macintoshes.
- A fire that destroyed the manufacturing facility of a Malaysian supplier that manufactures Apple's monitors.
- Decreased availability of dynamic RAM and quad-speed CD-ROM drives.
- A third-party software program that was bundled with the 5200 in Japan didn't meet Apple's quality assurance standards and had to be fixed.

According to Graziano, most of these problems have been corrected, and Apple has now increased its inventory to $400 million worth of products. In reaction, several Wall Street firms, including First Boston Corp. and Sanford C. Bernstein, Inc., have upgraded Apple's stock from Hold to Buy.

"Assuming there are no more operational problems, things should be great," said Bill Gurley, vice president of equity research at CS First Boston, an investment banking firm in New York. "Apple was cited by the channel as the No. 1 systems vendor [in unit sales] for the month of June, but they were also cited most often as having the most shortages of product."

One reason for the upgrade, he continued, is that demand for Apple products remains high despite the impending threat of Microsoft Corp.'s Windows 95 operating system.

Apple's backlog of orders has created "an atmosphere of demand and [has] users thinking about purchasing a Mac with a sense of urgency," said Chris LeTocq, an analyst at SoftTracks, Inc., a market research firm in Los Altos, Calif.

Graziano confirmed the backlog and added that Apple expects to fill those orders this quarter. He acknowledged that Apple will not be in a comfortable position until 1996.

The company's total unit shipments for the third quarter rose by 20%. Half of those shipments were Power Macintosh systems. The company expects that figure to rise to 80% by year's end.

Gross margins for the quarter increased to 28.3% of net sales, compared with 26.7% for the same period last year.

Slow quarter

Apple did show a 20% increase in third-quarter revenue, to $2.57 billion from $2.15 billion for the same quarter last year. But because the Cupertino, Calif., computer maker's earnings dropped to $103 million, compared with $138.1 million for the same quarter last year, Wall Street analysts were still disappointed. They had expected Apple to post 90 cents to 94 cents per share, rather than the 80 cents it reported.

Intel's P6 tuned for 32-bit apps

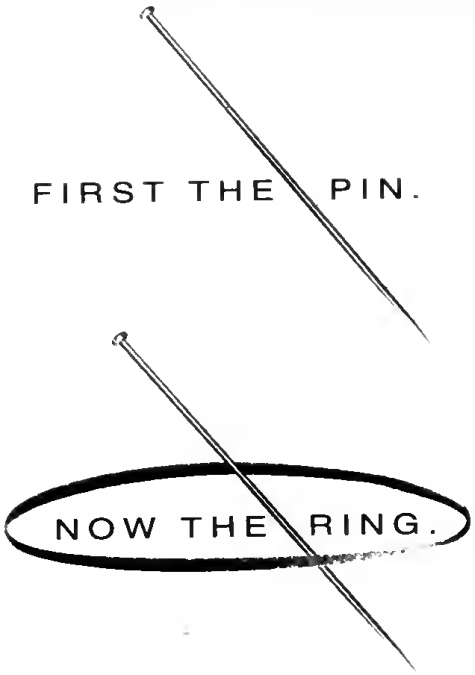
Users without 32-bit applications will see slight performance increases, if any, from Intel Corp.'s P6 processor, according to internal benchmarks.

Intel gave statistics in P6 strategy discussions with reporters last week. The benchmarks revealed that 16-bit applications run slower on P6 systems than on 133-MHz Pentium systems and in some cases slower than on 100-MHz Pentium systems. Intel explained performance differences by saying the P6 was meant for a 32-bit world.

Intel also confirmed release of a 60/150-MHz P6 in the fourth quarter. Sources said a 66/166-MHz chip will appear in the first quarter of 1996. The P6 is expected to further enable PC server encroachment on mainframe territory.

"It's an evolutionary path, and pieces are being developed and configured into servers that can take on the mainframe's role," said Richard Zwetchkenbaum, an analyst at International Data Corp. in Framingham, Mass.

Intel's market strategy may sound like a broken record, but analysts say P6 should be another best-seller. — *Michael Fitzgerald*



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Computer Industry

Let's make a high-tech deal

Record number of mergers and acquisitions reported for first half of year, totaling $39.3B

By Tim Ouellette

It's shaping up to be the summer of love in the computer industry, with more and more companies joining together every day.

That is because in the first half of the year, 649 mergers and acquisitions took place in the red hot computer industry, a 76% jump over the same period last year.

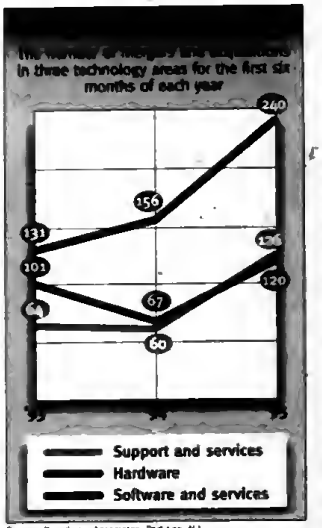
Though there has always been a goodly number of high-tech mergers and acquisitions, "this is the most robust activity that I have seen," said Paul Deninger, managing director at Broadview Associates, a merger and acquisition advisory firm in Fort Lee, N.J.

Not since the period between 1987 and 1989 has there been a similar level of activity, Deninger said. But at that time, companies outside the computer industry were looking to get in through acquisitions, which is not the case this time, he added.

Factors spurring many of the recent deals, according the Broadview report, include the coming introduction of Microsoft Corp.'s Windows 95, the move by large networking vendors to broaden their product lines by purchasing niche players and the rush to gain market share in the on-line services arena.

The conditions that have caused the shuffle in these areas include the stock market's explosive growth and a widespread demand for client/server systems, Deninger said. Also, the dwindling product life cycle has led many companies to buy products rather than take the time to build them, he added.

According to Michael Murphy, editor of the "California Technology Stock Letter" in Half Moon Bay, Calif., the success of Adobe Systems, Inc.'s purchase of Aldus Corp. last year helped ignite the buying firestorm. "Adobe turned it around pretty quickly after its stock price initially dropped and people saw it was a legit way to grow," he said.



Source: Broadview Associates, Fort Lee, N.J.

Broadview also found that the value of these deals had skyrocketed, totaling $39.3 billion so far this year, up from $25.7 billion in the first half of last year. Because a booming stock market has resulted in high stock prices and high valuations, companies with acquiring minds can more readily use stock as a means to purchase an undervalued company with a lower stock price.

"You can just plain afford to get these deals done," Murphy said.

That is why companies such as Silicon Graphics, Inc. are willing to suffer lower earnings in the short run — from their purchases of Alias Research, Inc. and Wavefront Technologies, Inc. — to quickly fill holes in their product lines.

3Com Corp. buys Chipcom Corp. See page 14.

Questions linger about Digital's comeback

Despite profits, analysts say battle continues

By Michael Goldberg

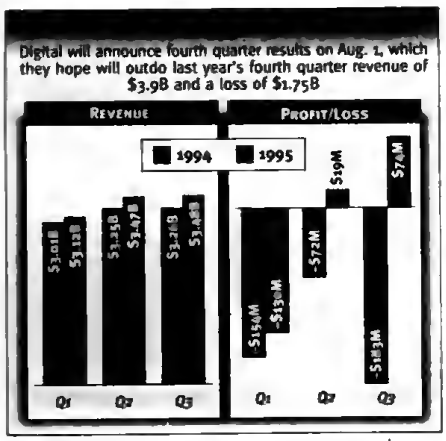
Although Digital Equipment Corp. is expected to post its third consecutive profitable quarter tomorrow, stock market analysts are still debating whether the company that lost $2 billion last year has turned itself around.

Analysts said the consensus on Wall Street is that Maynard, Mass.-based Digital will report a modest year-end profit for its fiscal year, which ended June 30. If so, it would be the company's first year in the black since 1990. Officials at Digital declined to comment.

Something to prove

"I'd say they've reached a clearing, but they're not out of the woods yet," said Steven Milunovich, an analyst at Morgan Stanley in New York. "They're showing some revenue growth, but it's still modest compared to other companies." Digital still must show it can generate gains to match the level of computer makers such as IBM and Hewlett-Packard Co., Milunovich said.

Cautious commentary from analysts did not dampen the enthusiasm of Joseph A. Pollizzi III, vice president of the Digital Equipment Computer Users Society. The company's progress validates his longtime loyalty, said Pollizzi, who is deputy chief of science and engineering systems at the Space Telescope Institute in Baltimore. "As one who has done a lot of strategic planning based on Digital technology, I consider it very good news. It's a very good feeling," he said.



More of the same

In fact, Digital's performance in the quarter should reflect a continuation of the company's behavior this year so far: a growing business in AlphaServer computers as VAX-related revenue declines and PC sales rise, according to William J. Milton Jr., an analyst at Brown Brothers Harriman & Co. in New York.

Milton strays from the Wall Street consensus in that he said he doesn't expect the company's profits in the past three months to be strong enough to put Digital into the black for the entire year. But he said, "The important thing here is that the company is profitable and is likely to remain profitable."

Milunovich said Digital officials told analysts earlier this year that its increased reliance on resellers rather than on a direct sales force would change its revenue pattern. He said this should create a trade-off: The quarter that ended in June, historically Digital's strongest quarter in sales, will show lower-than-usual sales, and the period ending in December, when resellers do more business, will grow.

How low can they go?

In a company progress report this month, Digital said it was down to 60,000 employees after laying off 5,500 workers in the past six months to cut costs.

On its guard

In addition to building server and PC sales, Digital has followed through on most of Chief Executive Officer Robert Palmer's turnaround plan. For example, by the end of June, Digital had finished cutting the workforce in half. The $14 billion company had sold off chunks of the business and revamped its management structure.

This should help Digital guard against a historically slow summer sales period, said John Jones, an analyst at Salomon Brothers, Inc. in San Francisco. The fourth quarter, meanwhile, "won't blow us away, but [the numbers] will be respectable," Jones said.

In the next few years, Milton said Digital will have to decide whether to invest in costly research and development to create new generations of its 64-bit Alpha microprocessor in the face of competition from chip giants such as Intel Corp.

"I have my longer-term doubts about whether it will make sense for [Digital] to stay on the microprocessor performance curve, given the low volumes" of Alpha chip sales, he said.

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Don't miss the August and October issues of Computerworld Client/Server Journal...

August Issue

Cover Story: Distributed Computing in the Next Millennium

A look at what's on the horizon for user interfaces, application development, hardware architectures and networking infrastructures.

Vertical Market Focus: Insurance

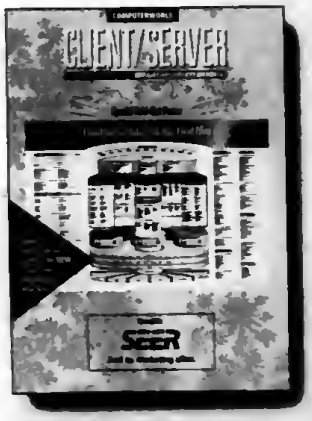
How downsized, restructured firms in this industry are taking groupware one step further by creating links with extra-enterprise partners — through EDI or Notes or workflow — to further enhance customer service.

Product Focus: Network Systems

Firing Line takes a comparative look at Sun Microsystems' Solstice and IBM's Karat.

Test Drive focuses on Sun Microsystems' Java Home Page authoring tool.

Careers Column: How to spot the signs of staff burn out and tips on how to remedy the problem.



Plus a special pullout guide – the Computerworld Client/Server Infrastructure Road Map – this foldout poster features a comprehensive listing of client/server hardware, software, application development and networking products.

October Issue

Ad Close: August 23

Cover Story: Measuring ROI for Client/Server

How are companies examining their return on client/server investments? Can it really be measured in hard dollar terms?

Vertical Market Focus: Transportation

A look at how successful the railroad industry has been in business process reengineering to regain a foothold in the transportation industry. Does it pose a competitive threat to trucking and what are trucking companies doing to remain competitive?

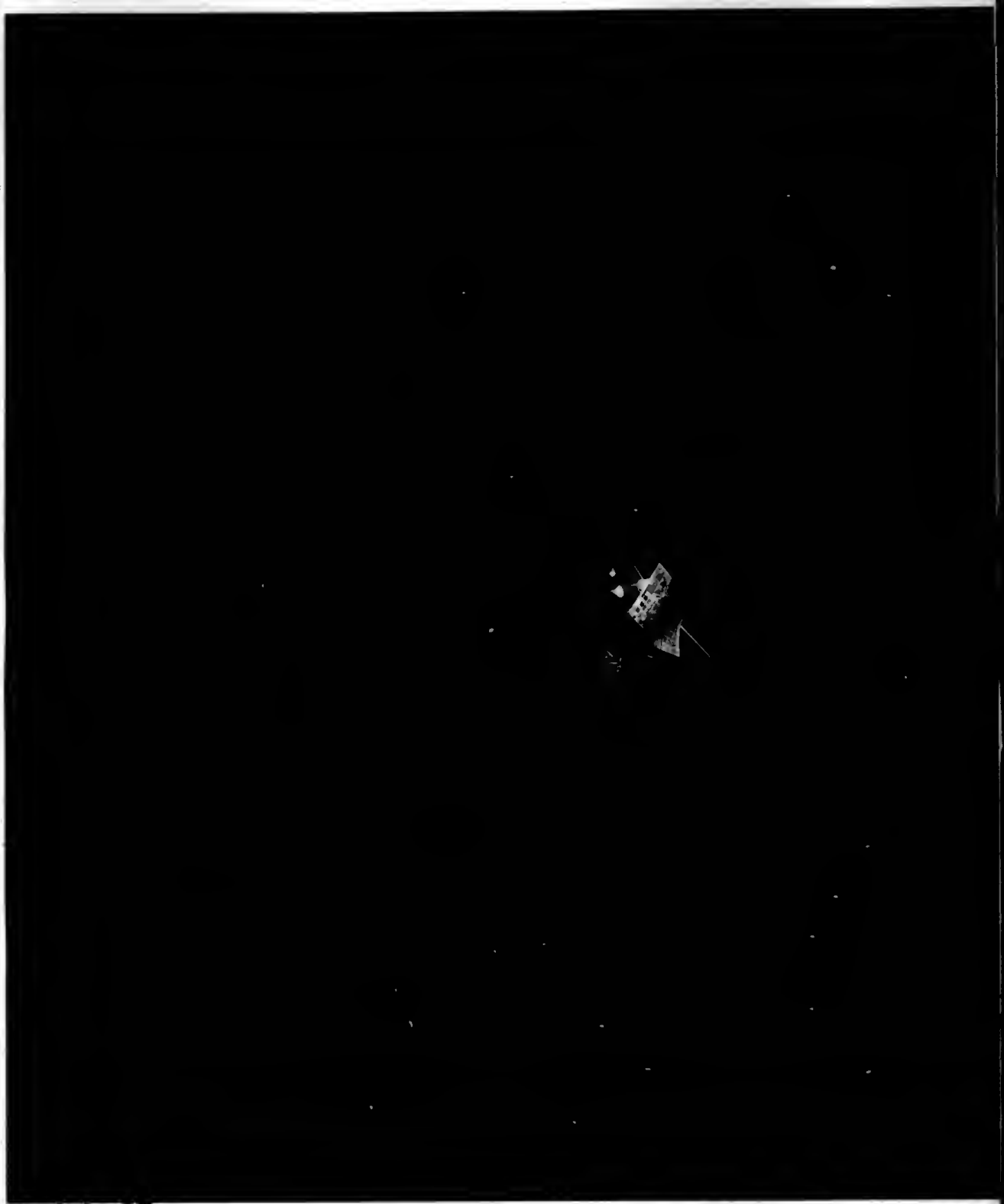
Product Focus: Database Tools

Our Firing Line feature compares ODBC drivers.

Careers Column: Grooming technical managers for project management.

COMPUTERWORLD CLIENT/SERVER JOURNAL

Where distributed computing meets business objectives



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Computer Systems

Leave content control up to us

When I was a kid, the six words that my friends and I feared most were "Wait 'til your parents find out!"

That phrase has come to mind a number of times lately as I read about congressional groping over how to regulate obscenity on-line. It seems the biggest story in cyberspace this summer has been more about what you *can't* see than what you can.

Content-control freaks are going to find that limiting content on the Internet is like holding out your hands to stop a speeding train: It's a nice gesture but ultimately futile. The Internet was designed to withstand a nuclear assault. It will surely reroute its way around government attempts to limit its content.

But in the meantime, the growth and vitality of on-line services will be limited by rumblings about government efforts to control them.

Elected representatives should butt out of the control business and let users, parents and the market address the issue.

I don't need the government to tell me what books or videos I can bring into my home, and I don't want the FBI watching the bits that come over my phone wires. But the industry must give me the tools I need to make my own choices so that someone doesn't step in to make them for me.

Here are a few thoughts on what parties at both ends of the wire can do to give control back to the user:

On-line service providers: You can do a better job collecting *and verifying* information about who has accounts on your services. Anonymous E-mail is OK, but law enforcement agencies should be able to identify the senders if necessary. Offer subscribers a range of screening and reporting services such as America Online's parental control feature, which lets users limit what their kids can do with their accounts or at least document what they've been doing.

Software makers: Give me a comprehensive journaling tool that lets me log any activity on my computer, including uniform resource locators and newsgroup addresses. Allow me to set up a simple database of thumbnail images that are downloaded to my system so I can check up on what my kids are checking out.

Regulators: Establish clear rules for prosecution of cyberstalking and harassment. Mete out particularly harsh punishment for any indecent activity directed at children. Leave consenting adults alone. Then get out of the way.

Parents: Boycott services that provide total anonymity to their subscribers. Let your kids explore and enjoy cyberspace, but make sure they know you can check up on them whenever you want. Their strongest incentive to stay in line while they're on-line is the fear of what will happen when their parents find out.

Paul Gillin, *Editor*
Internet: *pgillin@cw.com*

Navigation easier with page tabs

Just a note to let you know [that your page tabs are] the best redesign change I have seen in a trade magazine yet.

I have to read up to eight trade magazines each week. It is a real chore sometimes. Making it easy for me to navigate a publication, like you have done, is fantastic!

Keep up the good work.

Bob Erwin
Digital Link Corp.
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bob@dl.com

DCE is strategic to client/server at GM

The tone of your June 5 article titled "DCE software delays disappoint users" misrepresents how General Motors/Electronic Data Systems view Distributed Computing Environment (DCE). DCE is strategic to how distributed client/server computing will be done within GM because of the scalability, broad vendor support and robust security it provides.

Distributed computing is not trivial, and any standards effort in this area will take some time. However, the user benefits gained in terms of investment protection justify the effort.

There is nothing else available that offers a robust, secure, interoperable and standards-based environment in which to develop and deploy distributed client/server applications other than DCE. To imply that as consumers of DCE technology we are less than satisfied because DCE does not do everything is, at the very least, misleading.

Paul Frisch
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Bandwidth blues

You say, "I spend one-third of my time on the Web trying to find stuff, one-third waiting for screens to redraw and one-third reading useful information" ["Random thoughts," CW, July 10].

Ah, the fundamental bandwidth and utility question. Consider for the moment that:

1. Bandwidth requirements for the World Wide Web are higher than current capacity and will remain so for some time.
2. Web browsers are typically poorly integrated tools.
3. Hypertext Transport Protocol is a cheap hack that avoids a great many things that I need from my own publishing efforts.
4. No effort is being made to compress the data stream.
5. Indexing the Web is hard because it grows at 25% per month.

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Stop playing the victim

While Larry Cooke makes some important points about worker empowerment and the layoff/firing process [Over 40, and you're out!, CW, July 10], I find it distressing to have to stumble past a deliberately misleading statement that reinforces the idea that somehow white males are once again the real victims of the modern world.

Cooke identifies the victim in his article as "probably a white male," but this field is largely made up of white males. Who else are they going to lay off? I am a 40-plus female, a master's student in information technology, and not only are there no women in my classes, there are precious few minorities of any kind.

I hardly think it serves to clarify the situation to have the dominant worker group whining about discrimination when they hold most of the jobs and most of the positions of power. I personally think we could solve our problems more easily if we stopped trying to achieve top victim status and started working together to bring people back into the economic equation.

Penelope Roberts
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■ Computerworld welcomes comments from its readers. Letters should not exceed 200 words and should be addressed to Bill Laberis, Editor in Chief, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

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For more information on how to contact Computerworld editors, see page 106.

The see-through corporation

Ronald E. LeBleu and Roger T. Sobkowiak

In the beginning, there was the glass computer room where all the expensive hardware sat. Then came the glass door, which symbolized that the manager was available and approachable. Then there was the glass ceiling, the real and difficult-to-break barrier that prevents women and minorities from moving into upper management.

Now let's welcome the latest in see-through metaphors, the "corporate glass house effect."

At its core, the "corporate glass house effect" is about the information within a corporation: What it knows about itself and what others know about it. It has to do with corporate secrets and what can really be secret in this era of electronic eavesdropping. It has to do with proprietary systems and data that can, even with the best firewall, be accessed, read and even manipulated. It has to do with electronic mail that can send facts or rumors traveling across the country at the speed of light. It has to do with connectivity and virtual offices that redefine the internal and external boundaries of the corporation.

The notion that the corporation has indeed become a glass house requires us to rethink just what are company secrets. Can an inquiring reporter have E-mail access to key executives 24 hours a day? Can a stockholder look at the monthly production schedule? Can a creditor check up on cash reserves? All of this will be possible. What should the corporation do about it?

The irony is that, in this age of electronic connectivity, it is still not unusual to find a company that does not tell professional employees the possible salary range for their job. It is not unusual to find companies that have a problem sharing vital information among business units that are isolated from one another. It is not uncommon to find outsiders with more information and insights than insiders. A former business associate used to complain that "If you really want to find out what's going on in this company, buy a copy of the *Globe*!"

In many places, corporate managers are resisting the tide of electronic connectivity, and few have assessed the dangers or developed a glass house strategy. Sure, they have an information technology plan, but that isn't the same thing as a strategy for a corporation that will become increasingly more open and more visible to outsiders than ever before.

The difficulty is that the transformation is taking place on so many fronts and in so many departments in the corporation. IS is the guardian of the bulk of the data and the creator of the databases, while users are making decisions about what degree of openness should exist for their files. Outside agencies are requiring electronic filing. More and more data is being shared with vendors and business partners. And heaven help the corporation connected to the Internet!

The glass house corporation is far along in construction, and for many unprepared corporations, the realization will be very unsettling and potentially very dangerous. The whole notion of a corporate secret may become as obsolete as the paper it was written on.

LeBleu and Sobkowiak are managing partners at Software People Concepts, Inc. in Monroe, Conn.

OLE is Microsoft's weak link

Judith S. Hurwitz

Microsoft's core technology is too slow and inflexible for industrial-strength jobs.

Corporate IS groups and independent software vendors are searching for one vendor to provide a single set of application programming interfaces for the enterprise. But the leadership void in the area of enterprise infrastructure is growing like the hole in the atmosphere's ozone layer.

Microsoft has stepped forth to accept the leadership role and offer a magical patchwork of object and remote procedure call technologies. But I doubt whether Microsoft can make it a reality by the end of the decade.

The weak link in the overall Microsoft enterprise strategy is, ironically, the one piece that the company is touting as the centerpiece, namely OLE. OLE originally was designed to allow desktop application components to exchange messages. OLE 2.0, however, remains a monolithic piece of code that is not especially modular, flexible or scalable — the key ingredients for a distributed computing architecture. My developer friends tell me it's like assembly language programming. That's not exactly an encouraging sign.

Developers have also discovered that OLE is too slow in a complex computing environment. It's one thing to bring a few hundred rows of data from a remote database into a spreadsheet via OLE. It's yet another for OLE to link small-grained application components across a distributed networked environment.

Microsoft says this same OLE 2.0 will form the foundation for an enterprise environment, with the addition of a distributed file system, a transaction processing environment and a database controlling environment.

What worries me is the fact that even Microsoft acknowledges this transition will take a minimum of 10 years, and neither the corporate IS or vendor communities are prepared for that level of investment.

Microsoft will be forced to rearchitect OLE several times before it begins to resemble the type of industrial-strength environment required. No doubt this will mean that IS and software developers will be forced to make yet another massive technology transition — do you remember moving from OLE 1.0 to OLE 2.0?

I come away from my discussions with Microsoft and the software community having a sense of deja vu. It reminds me very much of the promises and ambitions that IBM had for its long-term Systems Application Architecture (SAA) strategy.

Now the industry is following Microsoft blindly down a similar road. Will Microsoft be more successful than IBM was? Perhaps. But Microsoft has never before had to design a mega-framework or experience the kind of pain that IBM went through with SAA.

Maybe partnerships and acquisitions will get the job done, but I worry that Microsoft is underestimating the magnitude and complexity of the task ahead.

When I point out to developers that OLE is complex, monolithic and difficult to develop for, they all agree. When I ask why they believe that Microsoft will transform this compelling vision into a working infrastructure, the answer is always the same: "Microsoft will accomplish this heroic task because they have to and because the industry needs it."

I remember a time when the world waited for SAA and believed that IBM would pull it off — because it had to.

Hurwitz is president of Hurwitz Consulting Group, Inc. in Newton, Mass. Her Internet address is jhurwitz@world.std.com. The firm is sponsoring a conference Aug. 7-10 in Cambridge, Mass., on business and client/server issues.

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Desktop Computing

Prognosis promising for PC project

Health care firm attacks PC life cycle costs with internal leasing program

By Jaikumar Vijayan

Baxter Healthcare Corp. is controlling its rapidly spreading PC assets with some serious internal medicine.

For more than a year now, the Deerfield, Ill.-based health care supplier's information technology department has operated PC Works, an internal PC leasing and management program. The leasing program, effectively an internal skunk works, was started to see if cradle-to-grave PC management on a fee basis could help standardize PC assets and keep a lid on spiraling ownership costs.

Receptive audience

Although it is still too early to quantify the program's savings, the forecast is encouraging, said Glen Jurmann, section manager of office technology at Baxter.

"Users seem to like the program very much. It really has helped to simplify the whole process" of distributed asset management, while reining in costs, Jurmann said. If deemed a success, the program will be expanded to include other divisions.

At least one PC Works user said he likes the program. Matt Zavaski, a marketing analyst at Baxter, said the approach has helped tremendously to reduce the hassles, paperwork and costs associated with a more localized purchase arrangement.

PC services offered through PC Works include the following:

- Hardware and software procurement and distribution.
- Installation.
- Maintenance.
- Help desk services.
- Asset tracking and disposal.

The program, which is based in Deerfield, spans the nine offices of Baxter's U.S. distribution business.

Instead of buying PCs locally, Baxter's user departments can choose from a standard PC Works menu of hardware. The menu offers users a choice of three desktop and two laptop configurations, although this could change. For example, Compaq Computer Corp. is the dominant PC supplier now, but this arrangement does not preclude other vendors down the road.

For a fixed monthly lease fee ranging from $146 to $190 per seat, depending on the configuration and service requirements, users can get a 75- or 90-MHz Intel Corp. Pentium-based system, installed software, help desk services and full support during the product's three-year depreciation cycle.

Baxter Healthcare's Glen Jurmann, *section manager of office technology: 'Users seem to like the program very much. It really has helped to simplify the whole process.'*

Once a user selects the hardware, his request is mailed electronically to a local Baxter controller for approval and then routed to PC Works. The PC Works group takes charge of the order and handles the procurement, shipping and installation of the PCs.

Prior to PC Works, user departments pretty much had free rein to purchase whatever hardware and software they wanted.

Analysts said the program was innovative and could provide a model for other large corporations.

"It sounds like what they are trying to do with life cycle services like these is have a much more methodical and controllable [PC] environment," said Allie Young, an analyst at Dataquest, Inc. in Framingham, Mass.

Though all user requests are processed through PC Works, the actual integration of the hardware and software is done by Baxter's main Illinois PC reseller.

Tracking system

The PCs are tracked throughout their life span by an asset-tagging process that links each machine to the end user and department. At the end of the depreciation cycle, the systems are reclaimed by PC Works for disposal.

The result: Instead of a mishmash of hardware, software, vendors and service contracts, Baxter can now implement standardized PC hardware and software platforms and offer more consistent service.

"The great part about the program is that it helps to minimize our expenses," Zavaski said. "Before, it was such a mess."

WordPerfect for Mac to access 'net

Other enhancements to include revised interface and Web browsing tool

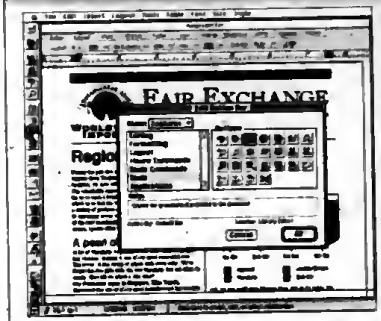
By Lisa Picarille

Novell, Inc. plans to deliver next month a beefed up version of its Macintosh word processor that lets users create and edit documents on the Internet.

WordPerfect 3.5 for the Macintosh will include Netscape Communications Corp.'s Navigator, a popular World Wide Web browser. This integration will allow users to directly access the Web from within a WordPerfect document. Novell is also including other tools — such as its Envoy electronic document publisher and viewer and Hypertext Markup Language import and export capabilities — to make it easier for users to post Web pages.

A new Bookmark feature — similar to the Bookmark feature in Navigator but a separate feature within WordPerfect 3.5 — lets users establish links directly to specific sites on the Web and create links to other parts of the same document or establish links to different documents

New features of WordPerfect 3.5 for the Macintosh



Bookmarks
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Button bar
Users can customize the button bar to perform specific tasks (see screen)

High marks

Peter Weil, a Ph.D. candidate at the University of Wisconsin at Madison who is using a beta version of WordPerfect 3.5 for the Macintosh to write his thesis on Russian politics, applauded this feature.

"Bookmarks are very useful editing tools," Weil said. "You can mark text to be edited and then go back and forth. I have information all over the place, and bookmarks make it convenient and useful to deal with different chapters, notes and articles."

WordPerfect 3.5 for the Macintosh also sports other enhancements, including a streamlined interface for easier navigation, support for Apple Computer, Inc.'s

WordPerfect, *page 44*

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Banks balance competitive transactions

Chemical Bank refines on-line service in response to electronic banking movement

By Thomas Hoffman

When Chemical Banking Corp. rolls out on-line and desktop banking services in October, it will be months behind competitors such as The Chase Manhattan Bank NA.

While Chemical has been slow to redefine its offerings in the on-line banking world, it is walking through the same miry marsh as many large banks. Because the electronic banking movement is just beginning to take shape, industry experts say Chemical will be solidly positioned because it has aligned itself with Microsoft Corp. and Intuit, Inc. through separate on-line banking ventures.

Earlier this month, Chemical became the first Top 5 U.S. bank to cozy up to Microsoft by offering to resell its Money for Windows 95 personal finance package to would-be customers. A week later, Chemical joined Chase, First Chicago Corp. and 18 other banks, credit-card companies and securities firms in support of Intuit's market-leading Quicken package.

Chemical's Ron Braco *says bank plans to start shipping banking software this fall*

The bilateral agreements were designed to provide Chemical customers with a range of electronic banking options that go beyond the bank's proprietary Excel PC banking software, according to Chemical officials.

Try it; you'll like it

Chemical officials declined to speculate on what percentage of their customers they expect to shift to Microsoft, Intuit and the soon-to-be-enhanced Excel packages. But given the uptick in branchless banking initiatives, Chemical executives realized they had to move quickly to keep pace with the rest of the industry.

Microsoft's Money for Windows 95 — which is slated for an Aug. 24 ship date with other Windows 95 products — is a revamped version of Microsoft's Money personal finance application.

The Windows 95 application is expected to offer significantly enhanced graphical user interfaces and functionality compared with Chemical's basic on-line package called Excel, which the bank has been marketing since 1984, according to Ron Braco, senior vice president of electronic banking at Chemical.

"If you're a less sophisticated computer user or you don't have the time to do check reconciliations with Money [for Windows 95], then Excel is the way to go," Braco said.

Take your pick

Chemical aims to combine the best of its existing efforts with the best that Microsoft and Quicken have to offer. Customers will be able to use Money for Windows 95 and Quicken to budget their funds and reconcile their checking accounts. The new Windows-based version of Excel will be accessible through Chemical's proprietary software or Prodigy. Excel offers baseline services such as account balance viewing, funds transfer and electronic bill payments.

Chemical customers using the Microsoft and Intuit software will be able to dial in to Intuit's Intuit Services Corp. subsidiary, which was set up to support processing for both software packages. Chemical Excel users are able to dial in to the bank's Tandem Compnters, Inc. Cyclone gateway to funnel requests for balance inquiries or update their list of electronic bill collectors. The Tandem gateway is linked over an IBM SNA oetwork to two IBM ES/9000-based consumer and wholesale deposit systems, according to Carl Morales, managing director for consumer banking systems and operations at Chemical.

Braco said he expects the bank to start shipping all three products sometime this fall. Chemical, which currentiy markets Excel for $10.95 per month, will announce pricing for Money for Windows 95 and Quicken this fall.

On-line budgeting and check reconciliation capahilties would appeal to Robert Hammond, a 33-year-old service technician at H G. Penn & Co., a construction equipment distributor in New York.

"I've been thinking about looking into Chemical's hanking software because I find the PC easier and friendlier to use than the phone for managing my hank accounts," Hammond said.

Chase develops tool to help securities managers quickly evaluate asset strategies without having to program

By Stuart J. Johnston
NEW YORK

The Global Securities Services (GSS) group at The Chase Manhattan Bank NA has a uniqoe challenge to meet: keeping up-to-the-second information on $t.5 trillion in securities for institutional investors worldwide.

Chase GSS, based here, is the world's largest custodian of stocks, bonds, treasury bills, foreign currencies and other securities for mutual funds, insurance companies, pension and retirement funds and foundations all over the world.

Chase holds securities for owners and provides them with data so they can make decisions regarding their assets. To do this, Chase GSS has to build tools so securities managers can quickly and easily develop strategies to manage their securities.

The catch is that securities managers want to spend their time making important financial decisions, not programming. So the tools need to be easy to learn, simple to use and extremely user-friendly.

By the end of September, GSS will be holding $1.8 trillion worth of other people's money in securities

Piece of cake

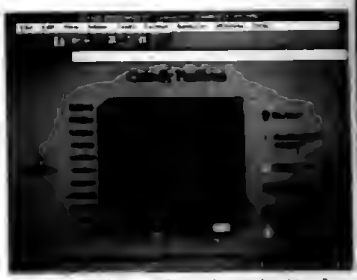
Enter Chase InfoStation 2000, currently in beta testing with four GSS customers.

InfoStation 2000 runs under Windows 3.1 and provides flexible client/server access to customers' data stored using Sybase, Inc.'s System 10 server database running on Unix servers in Chase's data centers in New York and Bournemouth, England.

Besides information regarding the securities they own, asset managers also need to know details such as trading laws in foreign countries, currency exchange rates overseas and even other countries' tax laws. Operations personnel at the customer companies also need to track sales transactions and make certain money is collected, taxes are paid and forms are filed.

These are just some of the major needs that InfoStation 2000 was designed to address when it becomes available to GSS customers at the end of this year.

Although Chase has a family of InfoStation products, the new product is miles ahead of existing tools that do "screen scraping from [IBM] 3270 systems and file downloads," said Barry Elkin, a vice president at GSS and product manager for InfoStation 2000.



Using InfoStation 2000's *analyzer charting features, users can quickly chart the value of their securities*

First, InfoStatinn 2000 helps end the problem of customers downloading "a lot of data that they don't need," said Lori Vinelli, a Chase vice president who has managed much of the day-to-day development effort. With the new system, customers will get only the specific data they need, thus saving time and system performance.

"Going from the CICS environment of looking at one transaction at a time to being able to use the graphical user interface and retrieve report-style information [showing many transactions simultaneously] is wonderful," said Kathy Coupland, manager of technology for Metropolitan Life Insurance Co.'s investment financial management department in Atlanta, an InfoStation 2000 beta tester. She says it has helped securities managers save time.

Fan of flexibility

Coupland said she also likes InfoStation 2000's flexibility, which allows for ad hoc reporting.

"Our financial analysts who do strategic planning need report writers, [while] operations [personnel] have to look at individual trades to see if trades are settling or failing and to see if the cash came in on the settlement dates," Coupland said.

Behind the scenes

Chase GSS's InfoStation 2000 was primarily built using Microsoft Corp.'s Visual Basic 3.0 and Access database.

Because much of the system is menu-driven and takes advantage of prebuilt report templates, most of the complexity of the data processing is hidden from the user.

For example, the user can create a report by choosing from a menu of database fields. Behind the scenes, the software generates the correct SQL statements and performs the queries on the server database.

The product also takes advantage of Wizard technology from Access to automate much of the process of designing queries and reports.

Development has gone relatively quickly for a system of these dimensions, taking 12 to 15 developers — including the Sybase developers — about eight months, said Barry Elkin, a vice president at GSS and product manager for InfoStation 2000.

— Stuart J. Johnston

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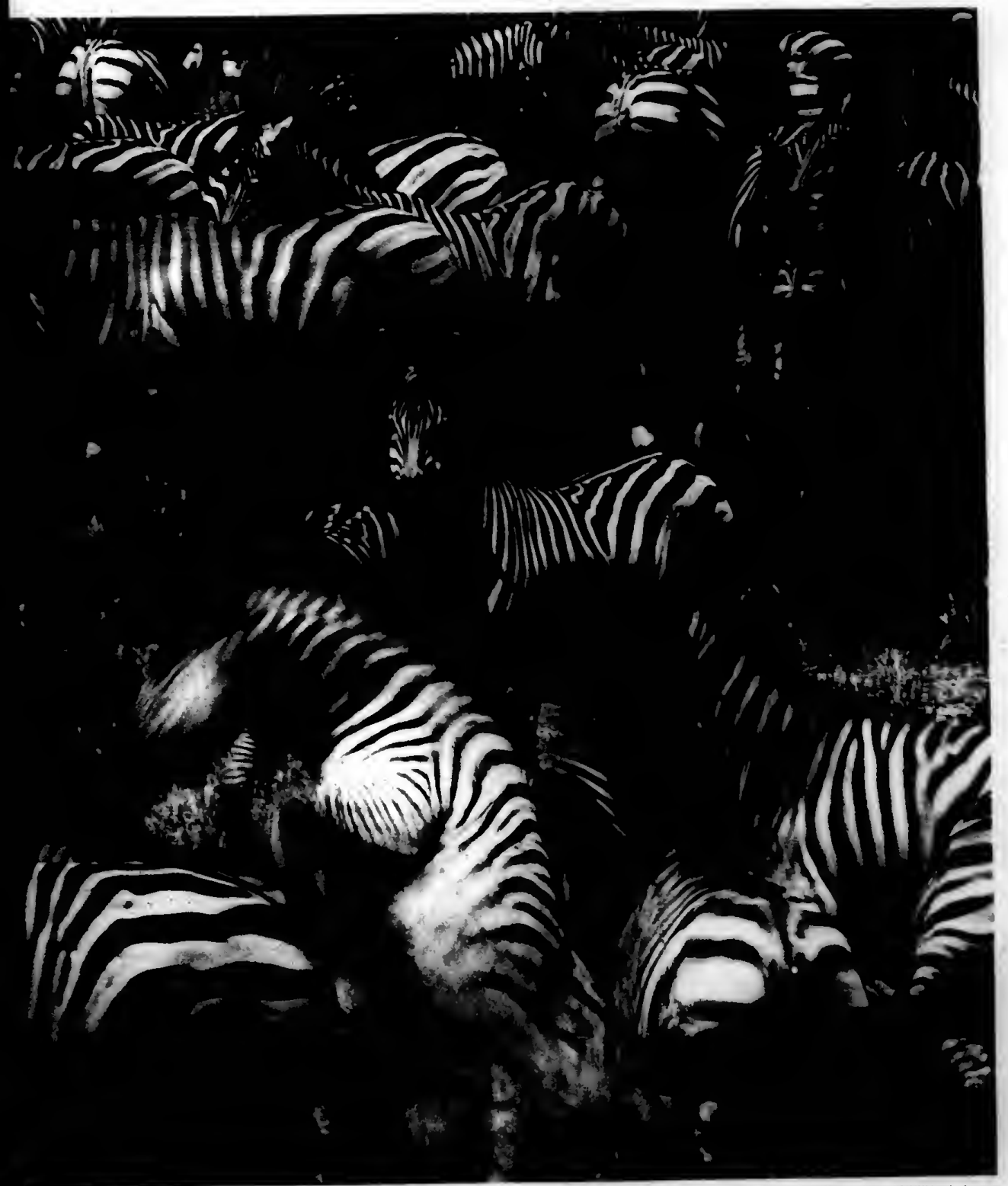

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[redacted]

Tanisys Technology, Inc. has introduced SpinWizard Corporate Edition (CE).

According to the Austin, Texas, company, SpinWizard CE is a groupware organizer that lets network managers configure and distribute applications and documents within Windows. It features a rotating, three-dimensional carousel of icons that can represent any application, file or command sequence. It automatically loads most applications onto the carousel at installation.

SpinWizard CE lets managers configure and centrally administer buttons on the client user's SpinWizard carousel and create a combined carousel in which the administrator can place and lock buttons.

Pricing for SpinWizard Corporate Edition starts at $55 per node.

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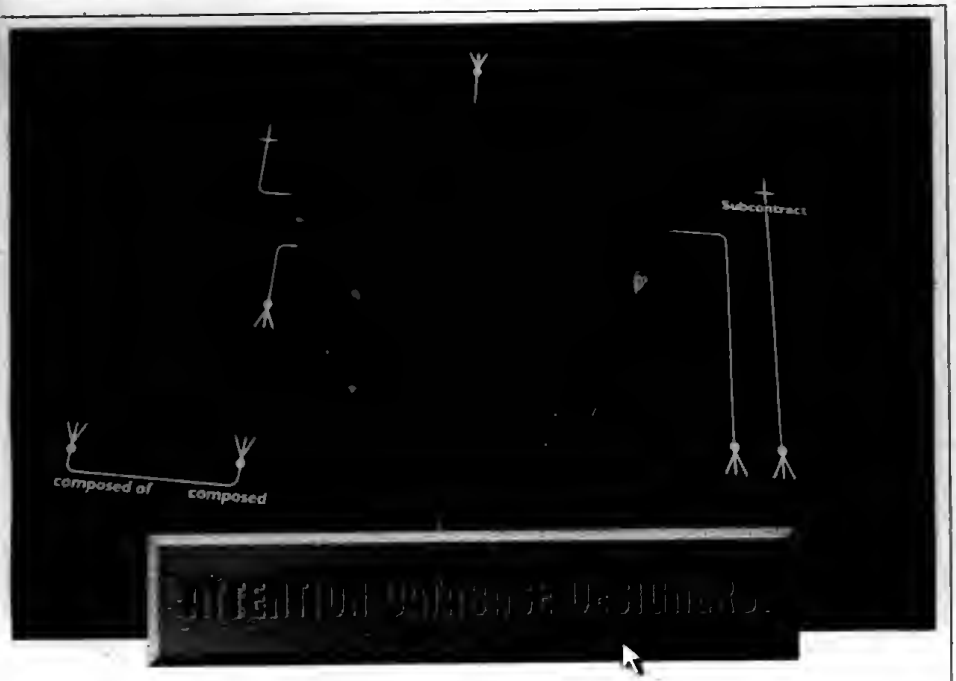
Product short

AER Energy Resources, Inc. has released AER Energy PowerPro, a rechargeable zinc air battery for Toshiba America Information Systems, Inc.'s portable computers. Cost: $399. AER Energy Resources, Smyrna, Ga. (404) 433-2127.



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HP adds subnotebook

Hewlett-Packard Co. recently broadened its line of subnotebooks with the HP OmniBook 600CT.

Weighing in at a mere 3.8 pounds, the subnotebooks feature a 9½-in. active-matrix color screen, 16-bit built-in audio and optional lithium ion battery. The systems are based on Intel Corp.'s DX4 25/75-MHz chip and ship standard with 8M bytes of RAM — expandable to 32M bytes — and a 260M-byte hard drive.

Other features include serial, parallel, floppy disk and infrared ports.

Shipping now, the systems are priced starting at $3,679. The 16M-byte and 24M-byte memory-expansion modules cost an additional $1,149 and $1,729, respectively. — *Jaikumar Vijayan*

WordPerfect

CONTINUED FROM PAGE 39

MacInTalk for converting text to speech and a Make-it-Fit function that lets users adjust font size, spacing and margins to make text fit into a desired number of pages.

Although Microsoft Corp.'s Word owns the lion's share of the Macintosh word processing market, WordPerfect has gained some ground. Market share for WordPerfect 3.5 for the Macintosh is expected to rise to 30% for 1995, compared with 11% for 1993, said the Software Publisher's Association in Washington.

"WordPerfect has been pushing hard on the Mac side," said Chris LeTocq, president of SoftTracks, Inc. in Los Altos, Calif. "Microsoft will always be stronger, but now there are a lot people that look at WordPerfect because they see the company as more committed to the platform because of Novell's work on OpenDoc."

Weil said Novell's support for Apple technologies is critical. "It makes me feel more secure and hopeful that in the future, when there are improvements to WordPerfect for the Mac, it will be with the Mac look-and-feel and Apple technologies in mind. It gives me more confidence than I have in Word 6," Weil said.

In the past, users and industry watchers have criticized Microsoft for making Word for the Mac too Windows-like.

WordPerfect 3.5 for the Macintosh is priced at $189.

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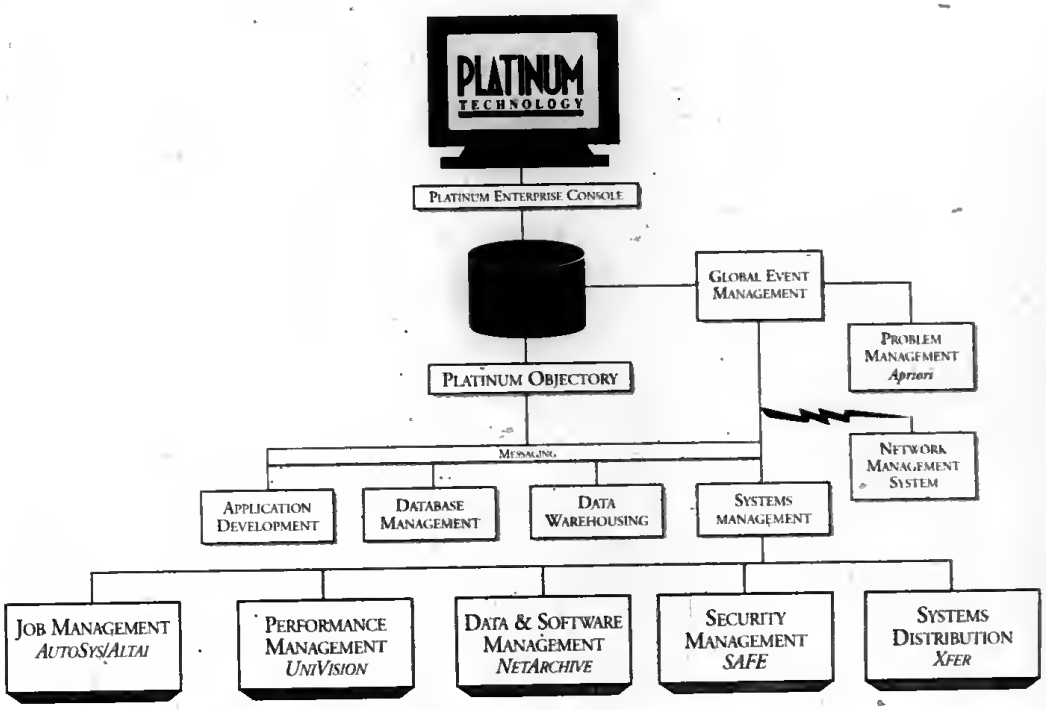

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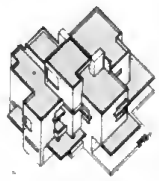

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IMAGE PRINTING FINDS ITS CORNERSTONE, 48
BRIEFS, 48

Workgroup Computing

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Kiosks keep car auctions moving

By Julia King

Each time a bidder in the bundle of mostly men winks, nods his head or jerks some other body part, auto auctioneer Ed Miller, clad in jeans and a lime green shirt, slaps a well-worn length of rubber radiator hose against a counter to acknowledge the offer.

At Miller's elbow is a computer screen displaying information about the Ford Ranger pickup truck now idling in Lane 1 of Adesa Corp.'s auto auction in Macedonia, Ohio. With the help of two "ring men" who patrol the oil-spattered concrete selling floor to quickly spot bidders' signals, it takes less than two minutes to sell the Ranger for $2,750.

By the end of the day, Miller will have slapped his hose thousands of times in selling some 800 cars, primarily to dealers. Nationwide, auto dealers regularly purchase inventory for their own lots at the suburban Cleveland auction facility and other Adesa auction sites.

Analytical Technologies, a client/server integrator in Bingham Farms, Mich., developed Adesa's Windows-based Easy System with Powersoft's PowerBuilder tools. At the company's Macedonia, Ohio, auction site, 60 PC-based workstations and nine kiosks are linked over a Microsoft Windows NT network. All customer and automobile data is fed in a SQL Server database. Adesa staffers also have access to Microsoft's full suite of [illegible] applications. Eventually, all 16 Adesa auction sites will be linked over a [illegible]

"Today, I'll buy maybe 15 to 20 cars, and I'll sell the same amount," said Burt Burgasser, who owns a dealership in Buffalo, N.Y.

To keep track of his many transactions at Adesa, Burgasser has only to swipe his bar-coded identification card and touch a few screen-based icons on any one of nine nearby PC-based kiosks.

Together with the auctioneer's PC — one of a total of 60 workstations — the kiosks are part of Adesa's new client/server-based Easy System, which has significantly streamlined the often gritty business of buying and selling used vehicles.

What the Easy System has done "is completely re-engineer the dealers' experience from the time they come in until they exit," said Steve Hicks, Adesa's information systems manager.

For instance, by giving dealers more control over their transactions, Easy System has cut car checkout time from 12 to three minutes. Registration time is also down, from three minutes to 20 seconds.

Car auctions, *page 48*

Package consolidates in-boxes

Mac users can pick up E-mail all in one place

By Suruchi Mohan

Claris Corp. last week announced Emailer, an interface that gives Macintosh users a universal in-box for on-line services.

Emailer, which Claris is marketing for Fog City Software, Inc. in Capitola, Calif., lets Macintosh users receive electronic mail from America Online, CompuServe, the Internet, Eworld and RadioMail in a single in-box. This means users do not have to log in to each service separately.

"I couldn't live without it," said Joe Zobkiw, president of TripleSoft, a software development company in Raleigh, N.C. "I check seven to eight E-mail accounts daily." He said it used to take him an hour or more to go through all the accounts; now, while Emailer downloads messages in the background, Zobkiw can work on something else on his Macintosh.

"This is the first piece of software that tries to deliver on [the promise] of the universal mailbox," said Tim Bajarin, president of Creative Strategies Consulting in San Jose, Calif. "It takes full advantage of Mac graphics and Mac integration with communications. It is easy to use when integrating multiple mailboxes."

Claris Emailer can do the following:

- Create and maintain an address book for all recipients.
- Help with installation via a question and answer format.
- Attach files from a hard disk or network.
- Support file exchange across various E-mail systems.

Although users said they are happy with the first version of this product, they would like to see additional features in subsequent releases. These include multiple signature files so different E-mail accounts can attach different features; AppleScript for adding features to the program; and agent technology embedded in the universal mailbox.

"It is the most valuable program on my computer right now, next to my development program."
— Joe Zobkiw, president, TripleSoft

Giving users the universal mailbox affords them a capability they never had before. "It is a nice simple product that does its job," said Brian Teeter, marketing communications manager at Amwest Surety Insurance Co. in Woodland Hills, Calif. "That's a lot of strength. It is as easy to use as a toaster; I could grasp this program very quickly."

The product is available now for $89 from Santa Clara, Calif.-based Claris.

Resumix streamlines employee skills tracking

By Tim Ouellette

Do you know what your employees can do?

One company now keeps up to date on employee skills with software from Resumix, Inc. in Santa Clara, Calif.

The Vanguard Group, a mutual fund company in Valley Forge, Pa., had already been using Resumix software to scan resumes into image files and extract the data into a skills database while recruiting new employees. But once the company hired someone, it had no way to move the information into its PeopleSoft, Inc. human resources system without manually re-entering reams of paper data, said Tom Howard, system manager at the mutual fund company.

So for Vanguard and other customers, Resumix developed Resumix OpenAccess, a set of application programming interfaces that tie the Resumix system to general human resources systems from companies such as PeopleSoft, SAP AG and Duo & Bradstreet Software.

"Once someone accepts the position, [a recruiter can] click a few buttons, and data flows to PeopleSoft," including job number, skills, salary and personal information, Howard said. PeopleSoft has skills tables but doesn't include skills codes or descriptions.

And when employees gain new skills — from training, for example — the PeopleSoft system will automatically send that data to Resumix to help develop future job descriptions.

From the get go

Some businesses are using Resumix OpenAccess, which costs $17,500, even earlier in the hiring process. At Signet Bank, Inc., numerous branch locations contain employment kiosks, which prompt job hunters through the application process.

The kiosk is connected to Resumix, which sorts through the data and helps form a pool of qualified applicants for various positions, said David Robinson, an officer at Richmond, Va.-based Signet.

Car auctions

CONTINUED FROM PAGE 47

So far, Adesa has moved two of its 16 auction facilities to the on-line system. Eventually, all 16 sites will migrate and be linked via a wide-area network. This will give traveling buyers instant access to information about all of their transactions with Adesa, regardless of the auction location. Auction sites include Moody, Ala., Indianapolis, Memphis and Knoxville, Tenn.

Hicks pegs the total cost of the project at between $4 million and $5 million.

Before the Easy System was installed a few months ago, Burgasser brought along an assistant to expedite the pile of paperwork involved in registering cars, transferring vehicle titles and settling his account.

"But now, I do all my paperwork right here," he said, rapping his knuckles on top of the shoulder-high kiosk. "It took me about 20 minutes to learn the system."

No more lines

The Easy System gives car dealers instant access to virtually any information they need about the auctions. For example, dealers can electronically obtain bid badges and vehicle lineups, pay buying and selling fees and secure passes to exit the auction with their merchandise once the account has been settled.

Before, dealers had to stand in separate lines to complete each of these transactions. At the end, they were left with "multiple paper-based copies of everything," Hicks recalled.

The Easy System, which includes Microsoft Corp.'s Office suite of applications, has also streamlined the work of Adesa staffers such as Theresa Nativo, a sales representative.

"With access to the computer, I can now resolve problems with dealers myself. I don't always need to go through her," Nativo said, pointing to Mary Adams, the auction's registration manager and former keeper of data downloaded from Adesa's old IBM System/38.

Credit control

One fringe benefit of Adesa's Easy System is a reduction in losses, according to Chuck Novince, general manager at Adesa's Macedonia facility.

"The System/38 was archaic and labor-intensive. It really couldn't tell you on the spot which dealers owed you money. The only way we could control [losses] was to put a policeman at the door. We actually had to put up 'Wanted' posters," Novince recalled.

The Easy System, by contrast, gives all Adesa staffers instant access to dealers' credit information, which "has allowed us to get a grip on the accounting side of the auction," he said. — *Julia King*

Card primes print performance

By Tim Ouellette

■ Imaging systems can't make paper disappear, but they can bring a standard office printer to its knees.

And there is still the matter of communicating with people in the outside world, most of whom still swim knee-deep in paper. This means printing out your image files for them.

"There will always be people out there who have to take it on paper. You have to build your organization to handle these levels," said Jim Robinson, information systems project manager at Ingram Micro, Inc. in Santa Ana, Calif.

But huge image files can clog a regulation printer. Cornerstone Imaging, Inc. is looking to address this need with PrintAccel, an image accelerator card that enhances the quality of an image before printing and speeds up the printer's performance. The product will ship next month.

"It really could help us," said Kevin Doherty, imaging systems engineer at Director's Mortgage, a Riverside, Calif.-based user of ViewStar Corp.'s imaging system. "Other loan companies who are not image-ready lead us to do a lot of printing."

The card fits into Hewlett-Packard Co. LaserJet 4 serial printers, the leading printer for businesses, according to Computer Intelligence InfoCorp in La Jolla, Calif. PrintAccel is targeted at networked printers so users can send image files from their desktop or workstation without buying more hardware.

Speeding up the printing process usually requires a dedicated machine or a faster, more expensive printer (see chart), according to users and analysts.

For example, Director's Mortgage currently relies on an expensive high-speed printer for large-volume print jobs. But as an HP shop, Doherty said, his company could easily cost-justify a product such as PrintAccel, especially with office printers spread among numerous buildings.

Bankers Trust Co., a user of FileNet Corp.'s imaging software, had to resort to dedicated hardware to move things along.

"We needed a dedicated machine because we couldn't go over the network," said Hugh Cullman, a vice president at the New York firm. "We were incapable of getting performance at the print site."

PrintAccel's driver software sends the image to the printer as a compressed 200 dot/in. file, different from the normal 600 dot/in. print file. The card decompresses the file, enhances the image quality and scales the file to the 600 dot/in. size required for printing on the LaserJet 4, which then prints at full speed.

"When people print, they shouldn't have to worry about whether it is image or text. The printer shouldn't be croaking every time it is an image," said Scott McCready, principal analyst at International Data Corp. in Framingham, Mass.

Paper caper

With other image printing configurations, especially the need for separate hardware

Configuration	Problem
Dedicated print station	Not connected to the network
Dedicated PC network print server	Long processing time; requires special network imaging printer
HP's JetDirect print servers (no dedicated print server required)	Slow processing speed, poor image quality
Image printing cards with JetDirect print servers	Poor image quality

Briefs

FileNet selects app partner

Workflow market leader FileNet Corp. in Costa Mesa, Calif., has chosen **Trident Data Systems, Inc.** in Los Angeles to develop health care and finance applications for FileNet's Visual WorkFlo software.

Scott Paper picks Novasoft

Scott Paper Co. has selected **Novasoft Systems, Inc.**'s NovaManage document and workflow management system for its paper mill operations. Scott has already entered 4,500 engineering drawings and is moving its procedures and material safety data sheets onto the system.

Palindrome ships software

Palindrome Corp. in Naperville, Ill., said Storage Manager 4.0, an integrated backup, archiving and hierarchical storage management product, is now available. It costs $995 for single-server networks of up to 25 users.

NASDAQ buys surveillance software

The **National Association of Securities Dealers** in Washington has selected **Applix, Inc.**'s network computing market surveillance software on Sun Microsystems, Inc. SPARC workstations and servers to scrutinize possible trading irregularities in the NASDAQ exchange.

PC-based Unix system ships

WorkGroup Solutions, Inc. in Aurora, Colo., said it has shipped WGS Linux Pro Version 2.2, a Unix operating system for Intel Corp. 80386 and 1486 PCs. The system is on CD-ROM and is priced at $19.99.

HP cuts LAN adapter prices

Hewlett-Packard Co. last week announced immediate price cuts of up to 15% on its 100VG-AnyLAN adapters and switches. 100VG-AnyLAN is a specification for supporting Ethernet at 100M bit/sec. speeds and competes with "fast" Ethernet products. The price of HP's 10/100VG Industry Standard Architecture adapter has been cut from $349 to $229, while the Extended Industry Standard Architecture (EISA) version now costs $279, down from $349. The price of a six-pack of 10/100 EISA adapters has been cut from $2,035 to $1,615, while the cost of a 24-pack of the Peripheral Component Interconnect version was dropped from $5,496 to $4,630. A package of 24 of the EISA models is now $6,215, down from $7,895. And the price of HP's AdvanceStack 100VG Hub-15 has been cut from $3,750 to $3,199.

Novasoft acquires 4GL vendor

Workflow vendor Novasoft Systems, Inc. in Burlington, Mass., acquired **Objective Solutions, Inc.**, a firm that has worked closely with Novasoft in the past. Novasoft, which used Objective's fourth-generation language as the basis for its product line, will gain software development centers in Florida and Massachusetts.

Sniffer Lite debuts

Network General Corp. introduced last week Sniffer Lite, a cheaper version of its network protocol analyzer designed for troubleshooting traffic on Novell, Inc. NetWare LANs. The product costs $4,995, about half the starting price of the enterprise network model. To help prepare reports from data collected by portable analyzers, the Menlo Park, Calif., company also added Sniffer Reporter. The software for 486 or higher PCs will ship today for $2,495; in 90 days, it will cost $2,995.

With so many vendors claiming to offer replication in their products, we believe it's time to clarify what replication really is and explain why it's a critical system component for users, administrators and application developers. True replication is the capability to bidirectionally and efficiently synchronize multiple instances of a database among distributed clients and servers across multiple computing platforms.

It's More Than Public Mailboxes

Conferencing or "threadware" products claim to support file replication, but merely create public discussion mailboxes. Users can send only text messages and file attachments, and security is extremely limited.

It's Mnre Than File Synchronization

File synchronization tools allow you to move files between folders on your network server and your laptop. These tools work well for personal use, but provide a weak foundation for collaborative activities. They work nnly at the file level, cannot find renamed files, and ignore deletions made while disconnected from the network.

It's More Than Relational Database Propagation

One-way replication is a feature of many relational database systems, A sales division, for example, can send sales figures to field offices, but those field offices cannot return updates or corrections. Relational database technology simply cannot handle multiple data masters, and therefore cannot fully support collaborative work processes.

Business Processes Require True Replication

Collaboration and coordination of team activities, whether within a workgroup or across an enterprise, deal with constantly changing, semi-structured information such as sales proposals and product specifications — the kind of information frequently used and modified by multiple people in multiple locations. What's needed is a flexible, two-way and secure replication mecbanism to facilitate these kinds of business activities.

The replication technology within Lotus® Notes® is well suited for today's business processes. It supports bidirectional

changes to database information — between users and servers or between servers — and sends *only* the information that has changed.

Replication technology must respond to changing business conditions. With Notes' selective replication, you can replicate only *your* regional sales data, *your* purchase approvals, and so on. Notes transmits changes at the document level today, and will offer field-level replication in its next version, Release 4.0.

Notes offers unparalleled support for mobile users. You can work with a local database replica on an airplane, and replicate npdates to co-workers (while their updates replicate to you) when you reacb your destination.

Notes' replication offers flexible conflict resolution. In the unlikely event that two people work on the same document simultaneously, Notes keeps both versions and automatically flags the conflict in the database. You can manually or programmatically decide how to resolve the conflict. Other products simply notify the database manager.

Notes revolutionizes application maintenance and distribution. Notes replicates not only data, but application design elements as well. Developers are now free to improve applications without worrying how to distribute the changes — even to mobile workforces.

Finally, Notes replication is reliable and scalable. Notes servers establish scheduled replication sessions, so synchronicity is assured. Other message-based replication methods are error-prone due to unpredictable delivery rates.

Notes offers the most advanced, comprehensive replication available today. Combined with its distributed object store and its superior application development environment, Notes can support a new class of strategic bnsiness applications such as worldwide sales force automation, cross-functional project coordination, and links to customers and partners, regardless of their computing platform.

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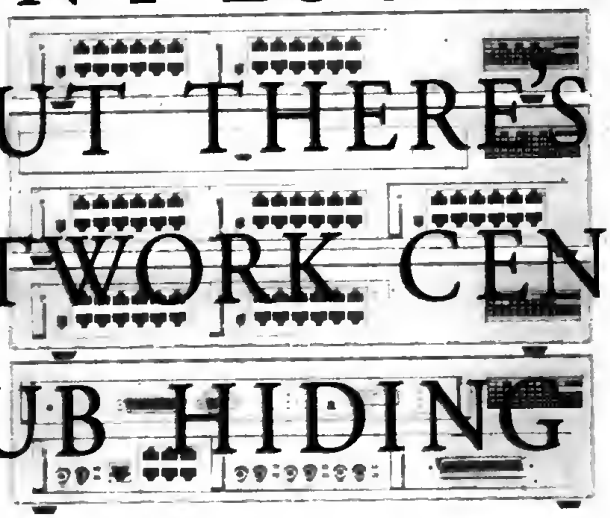

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Schools put 'pony express' out to pasture

ISDN promises speed, ease

By Neal Weinberg

When Gini Browsh, educational technologist for the Cincinnati public schools, wants to send a memo to a co-worker, she "puts it on the pony."

The "pony" is an internal messaging system that dispatches trucks to crisscross between the 83 schools and one administrative center in the district. Estimated time of delivery: two to three days.

But Cincinnati is putting its "pony express" out to pasture this summer and replacing it with an Integrated Services Digital Network (ISDN) that promises to improve transmission speeds from 35 miles per hour to 64K bit/sec.

The $4 million project is expected to save the school system $3 million over the cost of the pony express.

The project is being implemented in two phases. The first phase, now under way, involves establishing electronic mail for administrators. The second phase will bring the wide-area network, including Internet access, to the classroom.

Lacking links

Less than 3% of U.S. classrooms are linked to wide-area networks, according to Cincinnati Bell Telephone.

The system will be put to the test when an estimated 55,000 students return to school. The lack of a computer-based communications infrastructure has made September "a nightmare" for school administrators, Browsh said.

The Cincinnati school system, the 28th largest in the country, has a complex system of internal district boundaries and a variety of magnet schools within those districts. With families moving around and sometimes enrolling children late, it literally has taken weeks for administrators to nail down exactly which students were attending which schools.

This has wreaked havoc on everything from teacher assignments to bus routes to ordering food for the lunchrooms.

David W. Hickey *says Cincinnati schools 'were in the Dark Ages when it came to communications'*

The new system should vastly improve communication among administrators and will ultimately improve the quality of education, Browsh said. Teachers and administrators will spend less time shuffling papers and more time with students, she said.

The man behind the improved infrastructure is David W. Hickey, who became network administrator a year ago.

"It wasn't pretty," he said of his first impressions of the Cincinnati school operation. "They were in the Dark Ages when it came to communications."

There was a Honeywell, Inc. mainframe surrounded by "a hodgepodge of unsupported, outdated equipment," Hickey said.

Hickey started moving to a distributed computing model, adding servers and putting PCs from AT&T Global Information Solutions in every location. He loaded Microsoft Corp.'s Office and Mail and created Novell, Inc. LANs.

To connect the buildings, which are an average of 52 years old, he installed a fiber-optic backbone. Hickey then investigated a variety of data transmission options and settled on ISDN because it offered the best bandwidth for the money.

Hickey says now that the schools are wired, Cincinnati is ready to accept classroom computers under a new state program.

And he plans to have students surfing the Internet sometime next year.

Cisco software boasts integrated management

By Laura DiDio

■ Cisco Systems, Inc. recently forged new links between legacy IBM SNA networks and its router-based internetworks. The company announced a package that will let network administrators manage both environments from a single console.

CiscoWorks Blue network management software is a continuation of Cisco's phased strategy to provide full integration between its routers and IBM SNA networks (see chart).

Dave Nikolejsin, data network planning manager at British Columbia Systems Corp. in Victoria, British Columbia, will beta-test the product. He said he hopes to use CiscoWorks Blue to consolidate the chore of managing 45,000 users across Canada.

British Columbia Systems has several IBM 3745 mainframes whose SNA traffic traverses 1,500 Cisco routers. Until now, Nikolejsin said his firm has developed all of its own management applications in-house "to deal with correlating alarms between SNA and Simple Network Management Protocol-based router networks.

"Our implementation isn't pretty, but it works. But CiscoWorks Blue will save us a substantial amount of development time and cost," Nikolejsin said. He said he expects Cisco's software will contain more features and be more reliable than his company's home-brewed product. "The graphical capabilities will prove especially useful; one picture is worth a thousand words, especially for our junior operations staff," he added.

Cindy Santisario-Borovick, research manager at International Data Corp., a market research firm

Cisco, *page 59*

Cisco's legacy

CiscoWorks Blue is a series of modules designed to let users integrate the management of legacy IBM SNA traffic with Cisco's router-based internetworks. Its features include the following:

Native Service Point support
Gives IBM mainframe administrators the ability to fully control and monitor Cisco routers.

CiscoWorks Blue Maps
Allows network administrators to manage SNA and TCP/IP protocols from a single CiscoWorks console.

SNA Control and Correlation
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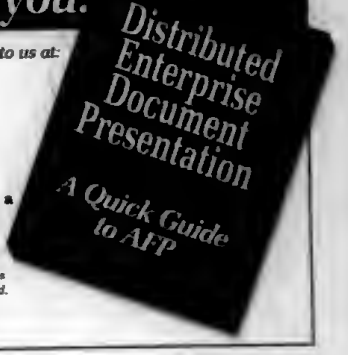

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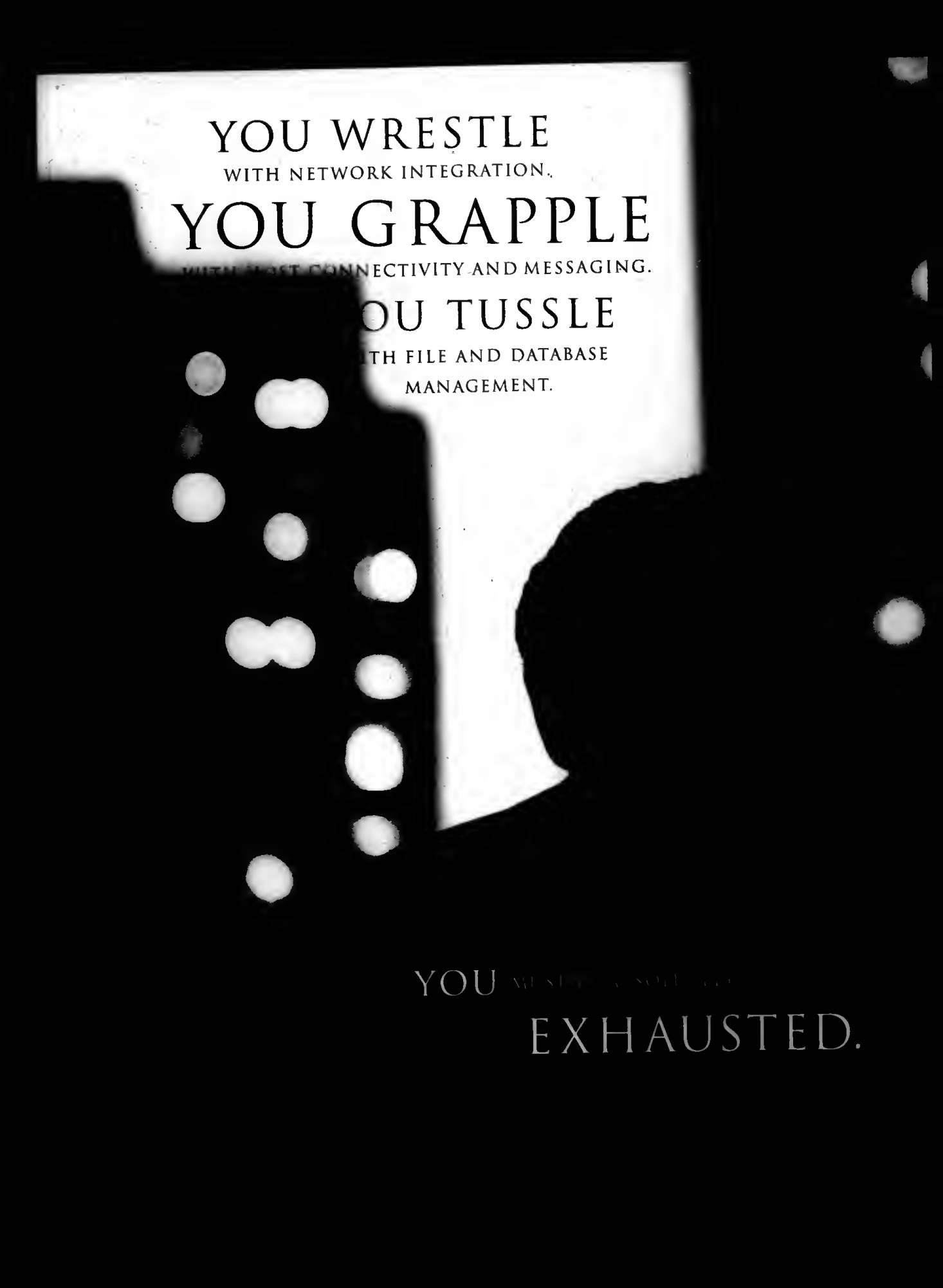
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Microsoft SQL Server: *The high-end database platform at the center of a complete client-server architecture for information management.*

Microsoft SNA Server: *Makes it easy to connect PCs to IBM mainframes and AS/400s.*

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WHERE DO YOU WANT TO GO TODAY?™

Chevron puts energy into Web page

By Jean S. Bozman
SAN FRANCISCO

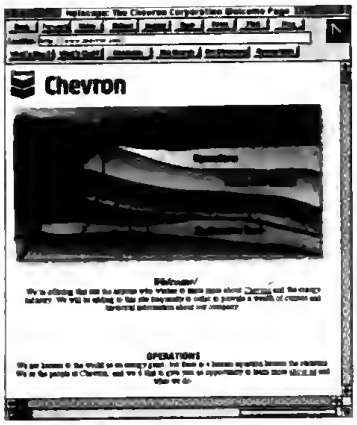
Chevron Corp. has 22 Internet sites within its corporate firewall. But it was only this month that the oil giant put its first home page out on the consumer side of the World Wide Web.

In doing so, Chevron, based here, tapped the networking knowledge of Unix experts in its information technology unit in La Habra, Calif. It fell to them to link a new Sun Microsystems, Inc. Unix server outside the firewall to an IBM RS/6000 Unix server inside the firewall.

ISL, a San Francisco digital design firm, developed the Hypertext Markup Language code. But it was information technology employees at Chevron who tied the Web server into the well-defined world of Chevron's enterprise network.

"Their role was to make sure that what we were developing was going to interface with Chevron security," said ISL President David Ferguson.

Chevron users had been using the Internet as a one-way street to access information outside the firewall or as a way to link Chevron sites worldwide. From now on, it will also be a means for outsiders to view Chevron corporate information and, eventually, to view selected product information on-line.



Chevron's *Web home page will offer users information on the energy industry*

The Sun and IBM servers are linked thorough a "pinhole" in the firewall, said Philip de Louraille, a Unix systems analyst who helped design and install the Web server. That way, the dedicated link is secure from outsiders.

Chevron's Web page icon — a cross-section of geologic strata harboring oil — anchors a set of special interest pages that viewers may visit. Each one has a focus, including financial analysts and reporters, consumers and students.

"The blueprint is now done," said Chevron spokesman Mike Libbey, who advocated with corporate speechwriter Terry Busch that the site be established to provide public access to Chevron's product and company news, executive speeches and corporate strategy. "We've furnished the living room, and now we're going to furnish the other rooms with the same design scheme."

The home page presented to the outside world has been cloned into a separate corporate home page set up for employees on the RS/6000.

What a tangled Web we weave . . .

By Ellis Booker

Are you wondering if your network engineers and programmers are pointing their Web browsers at naughty pictures during business hours? Try WebTrack, a software application that restricts employee access to unwanted World Wide Web sites.

WebTrack, from Webster Network Strategies in Naples, Fla., can restrict access to some or all of 15 Internet site categories containing anything from pornography to job search information.

The product, which installs on a proxy server behind or on the network firewall, also logs attempts to access inappropriate sites. WebTrack and its Control List (a list of thousands of uniform resource locators) costs $7,500. Regular Control List updates are available by subscription for $1,500 per year. Corporations can customize their installation by adding or exempting sites of their choice.

Meanwhile, SurfWatch Software, Inc. in Los Altos, Calif., which earlier this year inaugurated the business of Web filters, announced additional products and alliances last week.

SurfWatch 1.0 for Windows is now commercially available. The firm also announced it had signed a letter of intent with America Online, Inc. (AOL) to provide technology that will add additional capabilities to AOL's parental control feature.

The Windows product, with an estimated street price of $49.95, will be offered with a monthly subscription fee of $5.95 for site updates. Direct and Educational shipments of the Windows version began July 23, and SurfWatch will be available on retail shelves within 60 days.

Software firm sees NT in Web future

By Ellis Booker

In anticipation of high demand for Windows NT-based World Wide Web servers, Process Software, Inc. last week cut prices and announced new product and distribution strategies.

Until now, all Web servers have been Unix-based. But International Data Corp. (IDC) shows sharp growth for non-Unix Web servers. IDC, a Framingham, Mass., market research firm, estimated that Microsoft Corp.'s Windows NT Web servers make up 10% to 20% of the 50,000-unit market.

Growth will explode next year as the market jumps to 200,000 units. Some 60% to 70% of those won't be based on Unix. While Microsoft's Windows 95 and OS/2 will claim some of this market share, Window NT servers look certain to grow.

Process Software, in Framingham, Mass., earlier this year became the first company to ship a commercial Hypertext Transport Protocol server. It is now trying to stay ahead of competitors such as O'Reilly & Associates, Inc. in Sebastopol, Calif., which undercut Process' pricing scheme when it introduced its WebSite NT server at $499.

To fight back, Process plans the following full-scale shift in strategy:

- An update to its flagship Purveyor WebServer for Windows NT. The company also reduced the cost of Version 1.0 to $495.
- New products, including Purveyor Desktop WebServer for Windows 95. Aimed at departmental users in corporations, it will cost $295. Purveyor WebServer for OpenVMS, priced at $1,195, will also debut.
- A four-tier distribution program aimed at sending precise marketing messages for large corporate users, small business users, value-added resellers and technical consultants.

Among the enhancements in Version 1.1 of Purveyor will be a Virtual Server feature, which allows a single server to host multiple Web sites, each with its own access control, traffic and logging information and data directory.

It will also have a High-Performance API, a custom application programming interface developed by Process that allows developers to integrate Web pages with back-end applications, such as payroll and accounting.

Process hopes its new strategies will direct it into new markets. While the firm's share of Process' sales has gone to systems on the "public" Internet, company officials are very optimistic about what they call "intranet" applications and groupware — the use of Internet technology behind a corporate firewall.

"It's changing rapidly as people learn about what they can do with LAN-based Web servers," said Chris McIntosh, a senior product marketing manager at Process.

Purveyor 1.1 and the other new members of the Process Web server family will be available in September.

http:

A couple of standout exceptions aside, relatively few companies today are making real money via the Internet. Still, the Internet has the potential to produce profits for a panoply of progressive firms. Both sideline sitters and aggressive activist businesses are looking closely at just who's who on the 'net.

Monitoring who among your competitors has joined the 'net has become an important activity. (We'd like to see a survey on the percentage of Web traffic composed of Webmasters peeking at one another's Webs!)

- The best place to check on the competition is The Commercial Sites Index, a searchable index maintained by Open Market, Inc. **(http://www.directory.net/)**. On-line submissions to the index can be made at **http://www.directory.net/dir/submit.cgi**.
- For a vertical view, check the business corporations page in Yahoo **(http://www.yahoo.com/Business/Corporations/)**. At last look, it had well over 100 business categories.
- The NetPages, maintained by Aldea Communications, Inc., provides a directory modeled on the familiar Blue, White and Yellow Pages directories. This site also features NetPages Ebook, a downloadable copy of the directory in Adobe format. **(http://www.aldea.com/wwwindex.html)**
- Another Yellow Pages directory is maintained by Interactive Marketing Services, Inc. The site's "Business World" area is divided into four categories: Advertising and Marketing; Internet Providers; Media/Information Services; and Other Business Services. **(http://www.imsworld.com/yp/business.html)**

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[1]When available. [2]Operating systems priced separately (Power Series only). Entry-level PC Direct price. Dealer prices and product availability may vary. [3]In Canada, call 1 800 465-3299, enter #'s 45225 and 45226 for Power Series family and # 45228 for PC 700. IBM, OS/2 and AIX are registered trademarks and Power Series, PowerPC, Sensory Suite, NetFinity and There is a difference are trademarks of International Business Machines Corporation. All other company and/or product names are trademarks or registered trademarks of their respective companies. © 1995 IBM Corporation.

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Basically, users can do more and do it faster on the desktop. And as more advanced collaborative applications become available, you will be able to enhance your system to take full advantage. PC 700 prices start at $2,200 (monitor not included).[2]

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Motorola extends reach with PCMCIA wireless modems

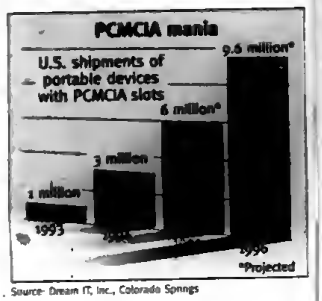
Wide-area product adds capabilities to portables for the ARDIS network

By Mindy Blodgett

Motorola, Inc. in Schaumburg, Ill., recently joined the small cadre of vendors developing PC card (PCMCIA) Type II wireless modems for the ARDIS network.

The Motorola Personal Messenger 100D — a wide-area, two-way single-unit modem — will fit into the PC card Type II or Type III slots on portable computing devices and personal digital assistants.

The Motorola product follows closely on the heels of the ARDIS Radio Modem rolled out by Eiger Labs, Inc. in Santa Clara, Calif., a start-up that last year began producing PC cards aimed at the mobile computing market.



Source: Dream IT, Inc., Colorado Springs

The PC card market has enjoyed slow but steady growth this year, according to industry observers.

"The PC card is an interesting way to add capabilities to portable computers without [building] them into the system," said William Ablondi, an analyst at BIS Strategic Decisions in Norwell, Mass. "The business is currently dominated by fax and LAN card modems, but we see messaging and two-way paging cards becoming more and more necessary."

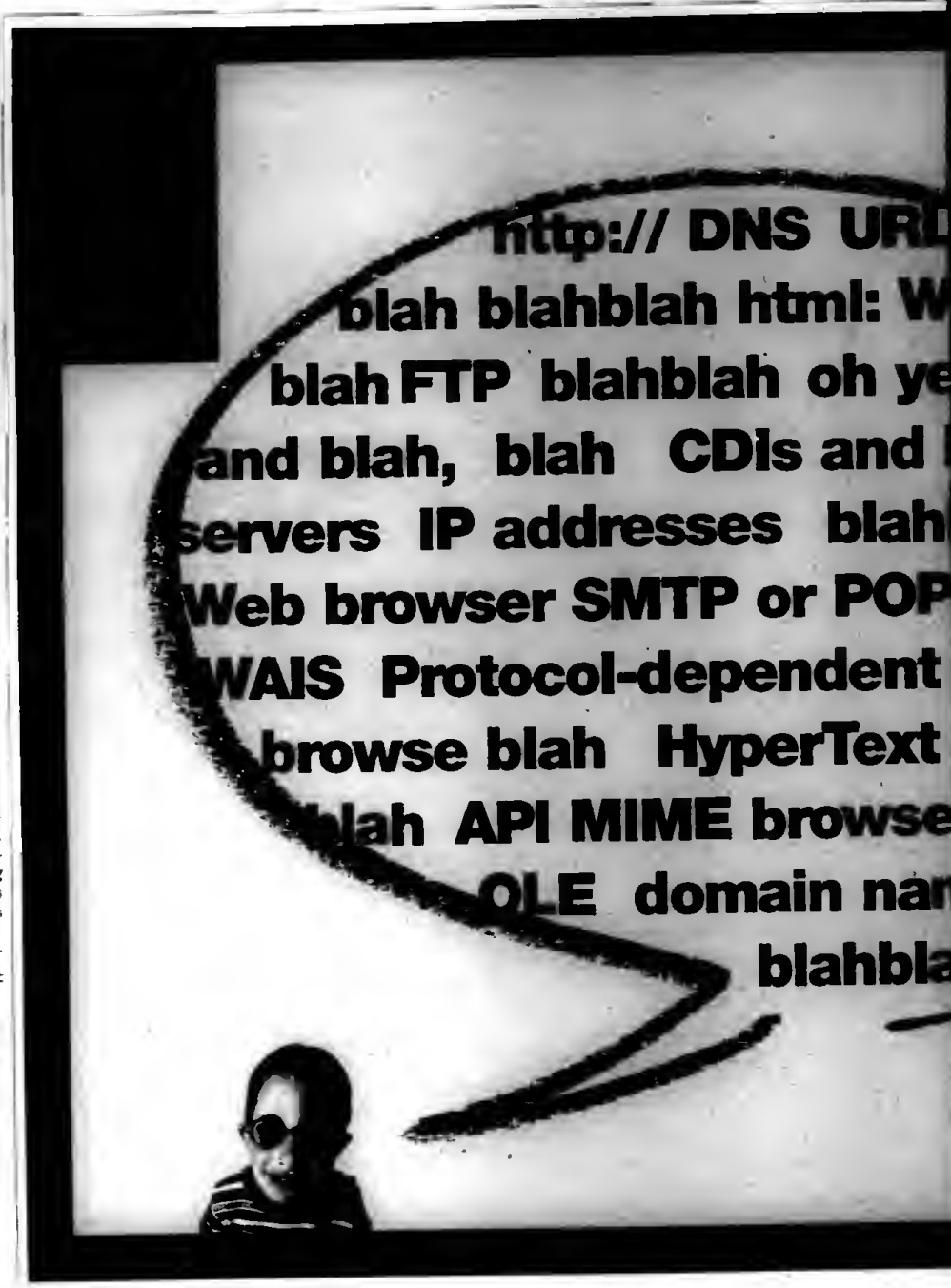
Motorola's modem is self-powered and runs on either a rechargeable nickel cadmium battery, with a battery life of two hours, or a 9V alkaline battery, which runs for three hours. It will be offered with RadioMail Corp.'s messaging service. ARDIS Co.'s Personal Messaging service, IBM's ARTour and Motorola's AirMobile Wireless Software for Lotus Development Corp.'s CC:Mail.

Ablondi has tested the Motorola product and said it works well for users "who spend a sizable amount of time away from their desks, either in or out of the office."

The modem, priced at $750, has a store-and-forward capability. When the modem is shut off, messages are stored on the ARDIS network and forwarded later.

Although Motorola's modem currently works only on ARDIS, the company said it plans to offer the modem for use on other wireless networks, including RAM Mobile Data USA L.P.'s Mobiletex or Cellular Digital Packet Data.

The Eiger modem, which costs about $895, gives users access to two-way messaging, electronic mail and other information services or comes as a PC card attached to a transceiver. The modem was designed to operate on any IBM-compatible portable or desktop computer.



Brief

Cyberporn a hot topic

The Information Technology Association of America in Arlington, Va., has announced a task force to evaluate methods of industry self-regulation for dealing with public concerns over Internet smut. The recommendations should be ready by September.

Cisco

CONTINUED FROM PAGE 51

in Framingham, Mass., noted that CiscoWorks Blue represents an important step in Cisco's continuing strategy to link its router networks and legacy IBM SNA networks.

"It will allow users to preserve their considerable investment in IBM mainframe management and still deploy router-based networks," Santisario-Borovick said.

On the way

CiscoWorks Blue consists of four modules that will be released over several months beginning in September, said Nick Francis, director of product marketing at Cisco's IBM Internetworking Business Unit. The first piece of software expected is the Native Service Point support, which will give IBM mainframe administrators a full, graphical view and control of Cisco routers. It will ship as part of the IBM Base option in Cisco's Internetwork Operating System software. The mainframe component is a separate option that costs $895.

Subsequent components of the CiscoWorks Blue package will let businesses manage SNA routed internetworks using the Cisco suite of management applications. CiscoWorks Blue lists for $4,995.

[redacted]

Intel Corp. has announced the EtherExpress PRO/10 PCI Adapter.

According to the Santa Clara, Calif., firm, the EtherExpress PRO/10 PCI Adapter is an adapter card that delivers high network throughput and low CPU utilization through a 32-bit bus master design and a 32-bit Peripheral Component Interconnect (PCI) bus interface. It features plug-and-play installation, auto hardware configuration, auto driver installation for NetWare clients, auto selection of media connector type and switchless and jumperless design.

The EtherExpress PRO/10 PCI Adapter costs $199 for a single-pack and $895 for a five-pack.

▶ *Intel*
(408) 765-8080

MRV Communications, Inc. has introduced MegaSwitch 100.

According to the Chatsworth, Calif., company, MegaSwitch 100 features five switched 100Base-TX ports and two slots for additional 100M bit/sec. Ethernet modules. The product implements selective flow control that lets stations view one another's traffic through the switch when necessary.

MegaSwitch 100 supports up to 2,048 addresses, and each port can transmit at half-duplex 100M bit/sec. or full-duplex 200M bit/sec. at distances of up to 40 kilometers.

MegaSwitch 100 costs $4,995.

▶ *MRV Communications*
(818) 773-9044

The Clarion business unit of Data General Corp. has introduced the Model 150 disk array.

According to the Westboro, Mass., unit, the Model 150 disk array was designed for low-end Unix and PC server applications requiring a high-performance, high data-integrity storage subsystem.

It has seven hot-repair slots for disk drive modules and is preconfigured with three 2M-byte disks in a RAID 5 stripe for quick installation. Two servers can share the Model 150 disk array.

The Model 150 disk array employs redundant subsystems to eliminate single points of failure. Disk, power and cooling elements are redundant and can be replaced on-line without tools.

Pricing for the Model 150 disk array starts at $10,995.

▶ *Data General*
(508) 898-5000

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Storage management

Users weigh benefits of DMI, SNMP

By Steve Moore

Standards for client/server storage management would be a boon to users wrestling with cumbersome collections of incompatible data storage devices. But industry players are still debating which standard they should adopt.

The two principal protocols that could ease the pain are the Desktop Management Interface (DMI), a recently developed standard for managing client and server hardware and software components, and the Simple Network Management Protocol (SNMP), which traditionally has been used for managing network devices such as routers and hubs.

Users and analysts disagree as to which of the two standards will best lend itself to storage management.

While DMI is applicable to storage management, "it brings with it at least as many risks as advantages," said Rob Enderle, a systems management analyst at Dataquest, Inc. in San Jose, Calif. DMI could add unnecessary complexity and "could result in letting people access storage devices you don't want them to have access to," he said.

SNMP advocates say the protocol isn't just for networks anymore and can be extended to handle computer systems, databases, applications and storage systems. But some users say SNMP also poses security risks.

Using the Desktop Management Interface for storage management

Pros

- Supports automated, enterprisewide management of storage devices
- Provides a consistent, network-accessible description of stored data resources

Cons

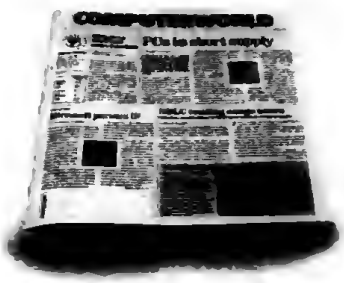
- Not yet widely implemented
- May entail added complexity and security risks

Richard Weiss, technical lead for systems and network management at Charles Schwab & Co. in San Francisco, said until the strengthened security features promised in a forthcoming version of SNMP are available, "the use of SNMP for systems management for us will be limited to things that would not pose a security risk — perhaps just performance and fault management reporting."

Security issues aside, Mike Peterson, president of Strategic Research Corp. in Santa Barbara, Calif., said he sees DMI and SNMP working together to support networked storage management. While SNMP may ferry DMI-based storage management information across networks, DMI is "the best thing going" for device-specific storage management, he said.

One way the two standards could coexist would be to "have a smart agent on the server that talks DMI to workstations under it, but talks SNMP to management consoles above it," said Jim Gast, vice president of technology at Palindrome Corp. in Naperville, Ill.

Users say that capability can't come too soon. "I'm very interested in any tools I can get my hands on that will help me automatically administer our network from the storage management standpoint as well as from the connectivity standpoint," said Larry Lemay, a network engineer at Computer Language Research, a Dallas-based corporate tax processing firm.



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NEW PRODUCTS, 69

Large Systems

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Iceberg set to break into big iron shops

StorageTek finally adds Escon I/O support to its mainframe disk array

By Craig Stedman

Fifteen months after it first shipped, Storage Technology Corp.'s Iceberg disk array is finally ready to float into the broad waters of the mainframe ocean.

That became possible when StorageTek added crucial support for IBM's Escon fiber-optic interconnect to Iceberg earlier this month. Escon moves data four times faster than traditional bus-and-tag I/O channels based on copper cables and is now the big iron interconnect of choice — especially in large shops.

Without Escon, Iceberg's reach into System/390 sites has been limited. More than 70% of new mainframe disk purchases are for use with Escon channels, said Carl Greiner, an analyst at Meta Group, Inc. in Stamford, Conn. Iceberg was shut out of that business and could only compete for the remaining bus-and-tag niche, he added.

Rolling 'em out

StorageTek is testing a second mainframe disk array called Kodiak that should ship in about two months, said Don Swatik, vice president of on-line storage solutions. Kodiak is a 1.3T-byte array that lacks the advanced features of Iceberg but has nearly twice the capacity.

Speeding things up

"We clearly have been anxious to get Escon. We could have used it Day 1," said Dick Fernandez, assistant vice president of computing services at Insurance Services Office, Inc., a clearinghouse for insurance data in Pearl River, N.Y. The nonprofit firm was one of the first Iceberg customers and has 450G bytes in place now.

Even with bus-and-tag channels, Iceberg helped speed up applications such as data sorts and backups, Fernandez said. However, tests conducted last year showed DB2 database processing would still run faster on old-style 3390 disks with Escon, he added. "Now we should be able to move that over to Iceberg."

Alamo Rent A Car, Inc. has installed 360G bytes of Iceberg on System/390s, but the rest of its terabyte of mainframe data was put on IBM's Escon-equipped Ramac disk arrays, said Thomas Loane, vice president of computers and communications services at the Fort Lauderdale, Fla., company.

"Escon's performance is very important," particularly in high-volume applications that stress mainframe I/O channels, Loane said. "We had some applications that Iceberg wouldn't have been good on before," he added. But with Escon available, Alamo may have a wider interest in Iceberg, Loane said.

Source: Company reports

Iceberg offers some features beyond typical RAID Level 5 technology, such as data compression and a log-structured file system that lets updates be written to any available location on a disk drive.

However, Iceberg has lagged well behind Ramac in shipments, even though StorageTek beat IBM into the market by nearly six months (see chart). StorageTek salespeople lamented earlier this year that the lack of Escon "was killing them," said Robert Callery, an analyst at International Data Corp. (IDC) in Framingham, Mass. IDC expects StorageTek to ship about 116T bytes of mainframe disk storage capacity this year, which would yield an 8.6% market share, Callery said. The vendor's internal goal was closer to 20%, he added.

Don Swatik, vice president of on-line storage solutions at StorageTek in Louisville, Colo., admitted that the company has had trouble getting customers to buy multiple Icebergs. But StorageTek expects "a significant uptick" in orders now, he said.

Besides adding Escon support, StorageTek doubled to 64 the number of drives that can fit within a single box and improved Iceberg's data compression and disk utilization capabilities. As a result, an Iceberg controller can now handle 720G bytes of data, up from 400G bytes. That should allow StorageTek to be "much more aggressive in pricing," Swatik said.

CA readies flurry of enterprise apps

By Thomas Hoffman
NEW ORLEANS

CA-Unicenter/The Next Generation, replete with three-dimensional special effects, was without question the showstopper announcement at Computer Associates International, Inc.'s user conference here earlier this month [CW, July 24]. But it was the lure of key enhancements to 20 CA enterprise applications that drew 15,000 otherwise intelligent information systems professionals to CA-World '95 in sweltering New Orleans in the middle of July.

CA's announcements fell into three primary categories, which included the following:

- OLE 2.0 support and OCX controls for CA-Visual Realia 2.0, CA-Realizer 3.0 and other client/server application development tools.
- Plans to integrate a new dynamic scheduling engine into CA-PRMS, CA-ManMan/X and other manufacturing applications.
- Enhanced decision-support capabilities for CA-Masterpiece/2000 3.0, CA-CAS/Unix and several other client/server business applications.

Several users braved the subtropical conditions to view CA-Dynamic Scheduling Engine, a new object-oriented manufacturing package the Islandia, N.Y., software giant is developing. The system is designed to provide manufacturers with hybrid — real-time and Manufacturing Resources Planning (MRP-II) — scheduling capabilities that should enable them to maximize their production runtimes.

That kind of functionality appealed to Krish Kumar, an IS manager at Robert Bosch Corp. in Charleston, S.C. Bosch, which builds antilock brakes and fuel-injection systems for Ford Motor Co. and Chrysler Corp. vehicles, has to deliver goods to its customers' warehouses within 64 hours of accepting an order. Kumar said CA-Dynamic Scheduling Engine should help his shop meet those deadlines more effectively by scheduling additional manufacturing runs around its existing MRP-II system.

"If you look at a closed-loop system of electronic commerce and distribution, there are fluctuations in scheduling," Kumar said. "This package should provide us with more flexible planning and scheduling." Bosch plans to beta-test the scheduling application with its CA-PRMS manufacturing suite in September.

More opportunities

For CA-Ingres users, there were more new features for the database systems and tools CA acquired with The ASK Group, Inc. last June.

For example, several users identified opportunities for leveraging the object-oriented capabilities in CA-OpenIngres/ODBMS, the hybrid object/relational database that CA is developing in cooperation with Fujitsu Ltd.

"You can store data as [binary large objects] today, but [CA-OpenIngres/ODBMS] should really improve our search and storage capabilities," said Steve Caswell,

CA-World, *page 65*

The enterprise strikes back

A sampling of key product enhancements recently announced at CA-World '95

Product	Function	New feature	Availability
CA-Dynamic Scheduling Engine	Designed to provide manufacturers with hybrid scheduling to ease production bottlenecks	A new object-oriented client/server package to be integrated with other CA manufacturing applications	In beta for CA-PRMS in September
CA-OpenRoad 3.5	An object-oriented multiplatform application development tool	Complete application generation capabilities on CA-Ingres, Microsoft's SQL Server and databases from Oracle and Sybase	Scheduled to ship Q1 1996
CA-Visual Realia 2.0	A GUI client/server development tool for Cobol programmers	OLE 2.0 support with OCX controls	Currently in beta; scheduled to ship later this summer
CA-Masterpiece/2000 3.0	Client/server financial management package	Decision-support workbench	A Windows NT version is planned for beta by year's end

NASDAQ trades up to client/server system

By Michael Goldberg

After 25 years and trillions of transactions, the NASDAQ exchange is moving part of its mainframe-based system to an open client/server environment.

NASDAQ is setting up a "gatekeeper" system to authenticate transactions for traders around the U.S. The system uses a cluster of Sequent Computer Systems, Inc. machines guaranteed to limit any system shutdown to 30 seconds, said John Hickey, the stock market's senior vice president for production services.

Quick fix

Sequent showed NASDAQ that its Symmetry computers would limit any system shutdown to 30 seconds.

Hickey said the gatekeeper setup will provide on-line confirmation of trades and allow buyers and sellers to report discrepancies immediately. Traders in other stock markets must wait a day to report such a problem, he said.

Starting in mid-1996, the stock market will use the Sequent cluster as a gatekeeper for 5,000 traders in the U.S. and England. In addition to the 30-second guarantee, Hickey said NASDAQ picked the Symmetry systems because they can run Oracle Corp.'s Oracle7 database management system software.

Hickey, who works at NASDAQ's Trumbull, Conn., data center, said the firm needed to break away from the proprietary software programs it has run on Unisys Corp. systems since 1971.

The stock market also uses 35 Tandem Computers, Inc. fault-tolerant machines to produce and confirm market results.

"The software we use today is on a very old base. We needed to move that base to make it more current and to make modifying it easier. If we want to make a change now, it's burdensome," Hickey said.

Room to move

The new system should allow the stock market — which hit a record of 597 million shares traded on July 19 — to handle approximately 800 million shares per day, Hickey said.

The $2.5 million Sequent system, which includes hardware, software and support, is one of the last stages of NASDAQ's five-year, $180 million information systems overhaul to modernize systems. Last year, the exchange experienced a series of computer-related trading disruptions [CW, Oct. 31, 1994].

The stock market will upgrade its mainframes to Unisys 2200/900 models, due to be rolled out by year's end.

It will install an MCI Communications Corp. 56K bit/sec. network to replace a 9.6K bit/sec. leased-line system. And by the time the overhaul is done, all traders will be performing transactions on Intel Corp. Pentium-based workstations, a market spokesman said.

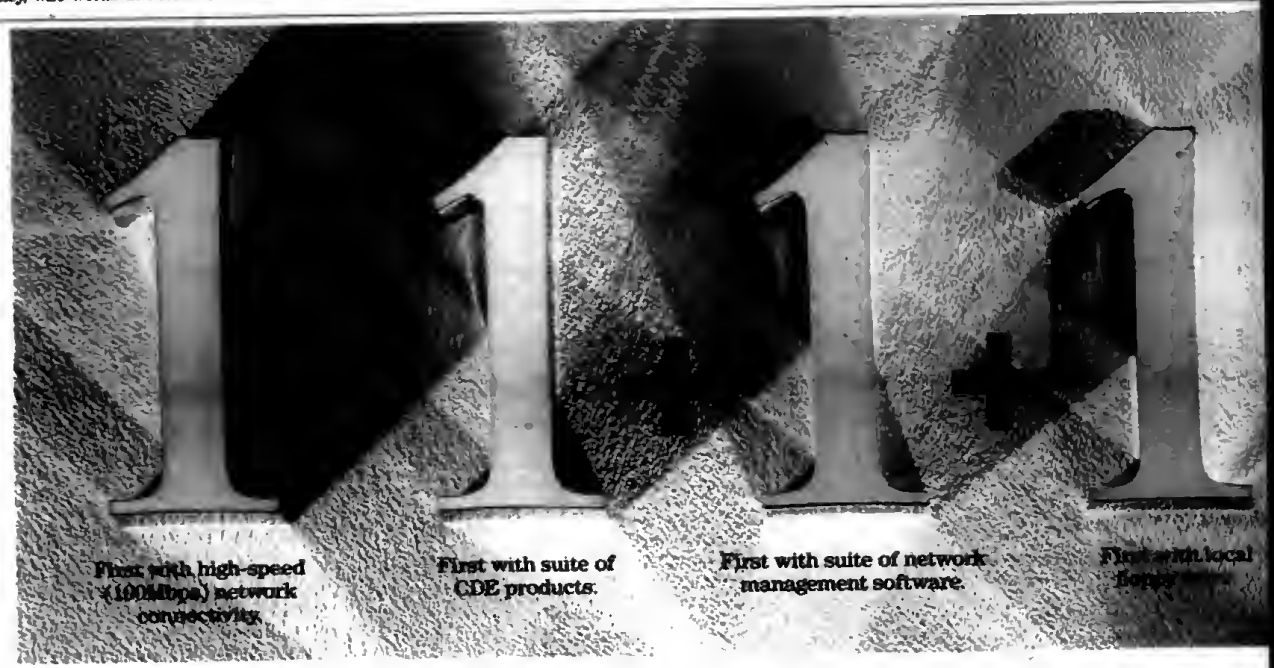
Hickey's IS staff of 360 people is busy rewriting software and modernizing network connections and workstations at remote sites across the U.S.

Norton Greenfeld, president of Implements, Inc., a Wayland, Mass.-based market analysis firm, said the deal demonstrates Sequent's value as a maker of highly available systems that compete with vendors promising fault tolerance.

Investing in technology

The NASDAQ exchange is installing three sets of clustered Symmetry 5000 systems by Sequent Computer Systems

Location	System	Function
Trumbull, Conn. (Headquarters)	A cluster of two 8-Pentium Symmetry 5000 SE20 machines	Tests new production software
	A cluster of two 8-Pentium Symmetry 5000 SE60 machines	Runs the stock market "gatekeeper" system for traders
Rockville, Md.	A cluster of two 8-Pentium Symmetry 5000 SE60 machines	Provides disaster recovery for gatekeeper system



The ones to look for in X term

*7 of 9 categories. **Units and revenues. International Data Corporation and X Business Group. ©1995 Hewlett-Packard Company

Firm gives products a client/server feel

IDEA adds AS/400 support to Concert controllers

By Craig Stedman

IDEA Associates, Inc in late July added several features to its Concert communications controllers for IBM mainframes and midrange systems that give the SNA-oriented devices more client/server flavoring. Included was software that provides access to the AS/400 from TCP/IP networks and remote PCs.

Merging markets

IDEA, in Billerica, Mass., already provided TCP/IP and remote dial-in access on the mainframe side. The AS/400 support comes as IDEA faces the threat of increased midrange competition from TCP/IP-savvy vendors such as Apertus Technologies, Inc. and CNT/Brixton, Inc., said Cindy Borovick, an analyst at International Data Corp. in Framingham, Mass.

"Demand is increasing for TCP/IP connections within the AS/400 customer base, and the SNA and TCP/IP markets are starting to merge," Borovick said.

Concert competes with IBM's 5394 and 5494 AS/400 controllers and its 3172 and 3174 mainframe devices. IDEA's sales are split almost equally between the two platforms, but proportionally, the company is a larger thorn in IBM's side in the AS/400 market, according to Borovick.

Genesis Health Ventures, Inc., a geriatric health care provider in Kennett Square, Pa., will likely start using the remote dial-in feature for the AS/400 within the next few months, said Mark Caplan, manager of network planning and implementation.

The company's therapists and case managers "are getting more mobile," Caplan said. Genesis, which is beta-testing an IDEA software release with the new features, will soon have Concert controllers installed at 70 nursing homes, therapy centers and doctor's offices, he said.

The features are packaged as separate modules and will ship Aug. 1 as part of Release 3.2 of Concert's software. Also new is a Windows-based package for managing Concert controllers from a central site.

Brief

UPS lands outsourcing deal

United Parcel Service, Inc. has landed a five-year, $1 billion contract with JC Penney Co. to provide logistics management services for the retailer's small package air deliveries as well as portions of its ground shipments.

Under the terms of the contract, the companies have agreed to jointly develop methods for reducing or eliminating costs involved with transporting JC Penney's domestic package shipments. These costs include the increased use of electronic data interchange.

CA-World

CONTINUED FROM PAGE 63

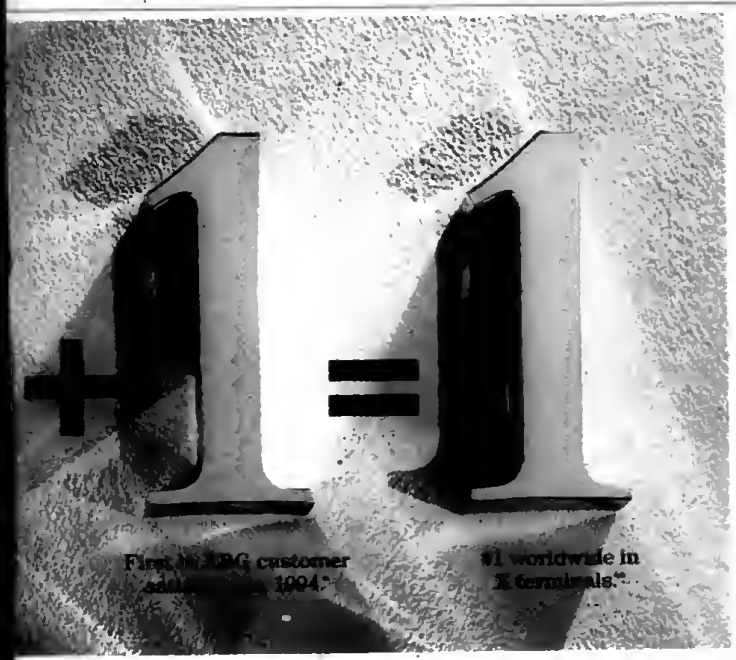
vice president of technology and quality at Palmer & Associates, Inc., a Norcross, Ga., consultancy.

Roger Williams, a computer-integrated manufacturing engineer at Polaroid Corp. in New Bedford, Mass., is interested in both the object orientation of CA-Openingres as well as CA-Openingres/Visual DBA, a new visual database administration tool that is supposed to make it easier for CA-Openingres database administrators to manage data and handle problems.

Making it easier

"I'm not really a [database administrator], and I don't know how to find a checkpoint," said Williams, who has been beta testing the software since early July.

But despite his lack of database experience, the visual tool has helped Williams to easily locate systems problems without forcing him to use a program manual.



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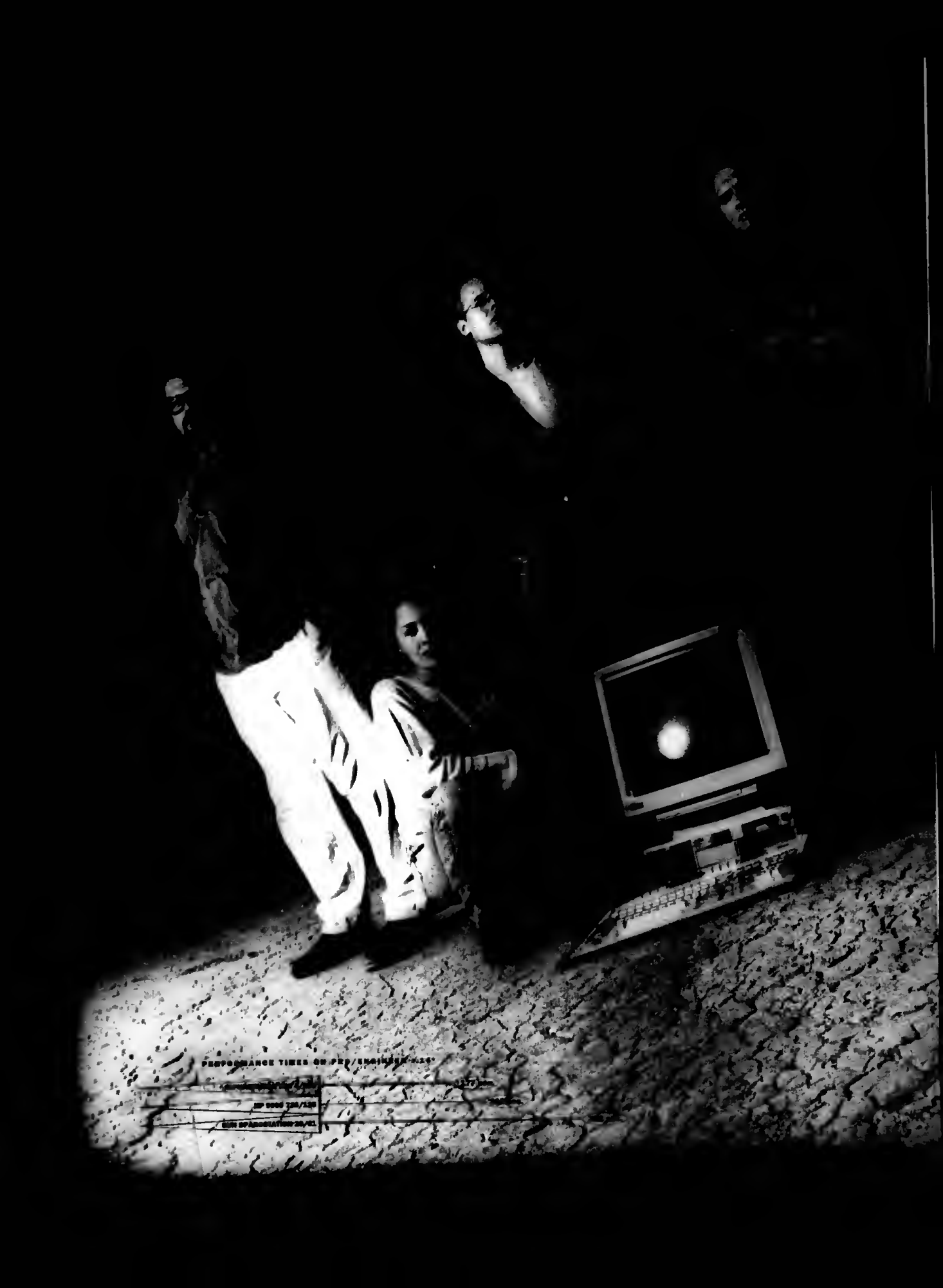
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AutoRAID simplifies disk array usage

Data storage product from Hewlett-Packard hailed as 'user-friendly'

By Steve Moore

Client/server users intimidated by the complexity of RAID were heartened by Hewlett-Packard Co.'s recent introduction of the first data storage product based on its much-heralded AutoRAID technology.

Implementing RAID usually requires time-consuming manual configuration and load balancing across multiple RAID levels that specify a variety of data protection techniques, but HP's XLR1200 Advanced Disk Array adjusts RAID levels to optimize data storage cost and performance.

Users were cautiously optimistic about AutoRAID. "We had trouble with [disk] mirroring due to the complexity of implementing it, and we will implement RAID once we have the budget for it," said Larry Kreighbaum, a senior computer facilities analyst at Amoco Corp. in Tulsa, Okla.

Although the firm is "looking at [Sun Microsystems, Inc.'s] RAID disk enclosure," AutoRAID's benefits "sound good on the surface," he said.

Analysts hailed the technology for its more user-friendly approach. AutoRAID "will spur acceptance of RAID, which many users were reluctant to get into because it was too complex," said Farid Neema, president of Peripheral Concepts, Inc., a market research firm in Santa Barbara, Calif.

Self-correcting feature

A key feature of AutoRAID is that in the event of a failure in a redundant disk array, it can reconfigure itself to become redundant in another way, "provided enough storage space is available," Neema said.

The Palo Alto, Calif., firm's previous Unix-oriented disk arrays were available only to users of HP computers. But with this product, HP is pursuing an OEM strategy to make the XLR1200 Advanced Disk Array available for any Unix environment as well as non-Unix environments, such as those based on the Macintosh or Microsoft Corp.'s Windows NT. Delivery dates will depend on customer demand, however.

The product, which an HP spokesman said will ship from some OEMs this fall, supports up to 24G bytes of data per enclosure and allows six enclosures to be mounted in a single cabinet.

"At the cost point, I suspect HP is aiming for about $1 per megabyte. People should be interested in using this new and needed piece of storage technology," said Mark Friedman, a principal consultant at Demand Technology, Inc., a Naples, Fla., consultancy.

RAID-iant

Features of HP's AutoRAID-based XLR1200 Advanced Disk Array

DYNAMIC DATA MIGRATION: Optimizes cost and performance by automatically migrating data among RAID levels.

ON-LINE CAPACITY EXPANSION: Supports logical disk volumes in which new and old drives of varying capacities can be intermixed.

ACTIVE HOT SPARES: Spreads spare storage capacity across multiple drives, thus keeping all disks active and increasing performance.

[redacted]

Systems Software Associates, Inc. has announced Configurable Enterprise Accounting (CEA), four new Configurable Enterprise Financials products for the BPCS Client/Server product line.

The new CEA products are BPCS Configurable Ledger, BPCS Configurable Currency Translation, BPCS Enterprise Structures and Consolidations and BPCS Advanced Budgeting and Analysis.

According to the Chicago company, CEA provides multiple, simultaneous posting of transactions to different target ledgers. This lets users compose rules for any business event to define what information, in what currencies and to which books the transactions are posted.

The products run on platforms including IBM's AS/400 and RISC/6000 and Hewlett-Packard Co.'s HP 9000.

Pricing for a typical configuration starts at $75,000.

▶ *Systems Software Associates*
(312) 474-7410

XDB Systems, Inc. has introduced XDB-Workbench 4.

According to the Columbia, Md., company, XDB-Workbench 4 lets users offload mainframe IBM DB2 development and maintenance to less costly and more productive platforms, including PCs and LANs. It gives programmers a DB2-equivalent environment to develop, test and execute complete DB2 applications on the desktop.

XDB-Workbench 4 consists of a database engine, a Cobol precompiler and development and administrative tools for the production of mainframe-ready applications. These tools include interactive facilities to create and alter tables and indexes, Cobol copybook generation, full import and export capabilities and table editing and browsing.

XDB-Workbench 4 also includes an interactive SQL utility that lets users write SQL commands, edit data, browse the database catalog and review the syntax of any SQL command.

XDB-Workbench 4 costs $1,500 per user.

▶ *XDB Systems*
(410) 312-9300

Genicom Corp. has announced Genicom 2430 and 2431, serial-matrix printers designed for IBM systems.

Genicom 2430 is an 80-column wide printer; Genicom 2431 is a 132-column wide printer.

According to the Chantilly, Va., company, the printers are equipped with an S/370 coaxial interface or an AS/400 S/36 twin-axial interface.

Each comes with a standard automatic switching feature that lets users switch between an IBM PC and an AS/400 host or an IBM PC and an S/370 host.

Genicom 2430 costs $1,530; Genicom 2431 costs $1,750.

▶ *Genicom*
(703) 802-9200

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WATCOM COMPILER GETS VISUAL INTERFACE, 72
NEW PRODUCTS, 72

Application Development

CASE • LANGUAGES • TOOLS

Red Brick offers small warehouse data marts

By Kim S. Nash

Red Brick Systems recently unveiled several new data warehousing products, including systems to tackle low-end workgroup servers as well as the tippy-top of massively parallel processing (MPP) boxes.

On the low end is Warehouse for Workgroups, which the Los Gatos, Calif.-based warehouse vendor hopes will attract user interest in data marts. The marts are smaller, limited-user versions of full-fledged data warehouses. Think of marts as 7-Eleven-type convenience stores as opposed to Piggly Wiggly-type supermarkets.

Data warehouse: A database designed specifically to hold large amounts of business information that end users can query, massage and analyze; a sophisticated decision-support system that usually runs on massively parallel or symmetrical multiprocessing machines.

Warehouse for Workgroups was designed for single-processor Unix hardware.

Marts are expected to appeal to two sets of users: toe-dippers who want to start small with warehousing and companies that plan to put miniature versions of their larger systems at remote sites.

A retailer, for example, might set up regional warehouses so that local managers could measure inventory, sales, back orders and other data pertinent to their specific regions instead of companywide information.

On the high end is Red Brick's Warehouse XPP, which was designed to run on MPP systems, starting with IBM's RS/6000 SP hardware (see chart, page 72). For any warehouse bigger than 500G bytes, users should trade up from Red Brick's flagship Unix-based Warehouse VPT 3.5 product to Warehouse XPP, said Ram Srinivasan, Red Brick's director of product marketing.

Dover, Del.-based Playtex Apparel, Inc. is spending "several million dollars" to build warehouse systems on VPT 3.5, said Sandra Tucker, MIS supervisor of sales and marketing systems.

During the next several months, Playtex plans to give 30 to 40 marketing and sales workers access to two years of customer histories. The roughly 60 million rows of data will be taken off production IBM DB2 mainframes and Oracle Corp. Unix databases and loaded onto Red Brick systems running on Hewlett-Packard Co. HP 9000 Unix servers, Tucker said.

More isn't better

Yet the notion of throwing yet another database into an already-complex client/server mix doesn't appeal to some users.

"We don't want to support any more databases than we need to," said Bob

Warehouses, *page 72*

Client/server tools for Windows 95

Vendor/product	Ship date	Supports	OLE controls
Borland International Delphi 32	Within a few months of Windows 95	32-bit and 16-bit platforms	Can use and create
Cognos Axiant 2.0	Scheduled for February 1996	32-bit platform in first release; 16-bit platform in second release	Can use
Gupta SQLWindows	Within 90 days of Windows 95	16-bit and 32-bit platforms	Can use and create
Microsoft Visual Basic 4.0	Within 90 days of Window 95	16-bit and 32-bit platforms	Can use
Powersoft PowerBuilder 5.0	None available	16-bit and 32-bit platforms	Can use
Progress Software Progress 8	Scheduled for early 1996	16-bit and 32-bit platforms	Can use

Win 95 wave won't wipe out 16-bit apps

By Elizabeth Heichler

A wave of new 32-bit client/server tools is due following the release next month of Windows 95, but corporate developers say they will continue to write applications for 16-bit Windows users for some time.

In general, developers are looking to Microsoft Corp.'s 32-bit Windows 95 operating system to provide a more stable development environment than Windows 3.1 for the new-and-improved tools expected from the likes of Borland International, Inc., Gupta Corp., Microsoft and Powersoft Corp. (see chart above).

"I'm hoping that there will be better memory management than there is now," said Hitesh Dani, a senior programmer analyst at Hershey Canada, Inc. in Mississauga, Ontario.

A development team at Polaroid Corp. in Cambridge, Mass., has been working with Windows 95 for the past two months. David Headley, senior software engineer at Polaroid, said he is pleased with the level of stability of the environment. His team is also beta-testing Microsoft's Visual Basic 4.0, which shows better performance and data access features and more support for OLE automation, he said.

Coming soon

One of the first Windows 95 tools developers will have a chance to look at will be Delphi 32, which Borland will demonstrate at its user conference next week. Borland plans to maintain separate 16-bit and 32-bit versions of Delphi. Next out of the chute is likely to be Visual Basic 4.0, which Microsoft has confirmed will bow on Sept. 12.

Prior commitments

But while tools move to the 32-bit world, developers must still deal with supporting applications that run on older generations of 16-bit systems, said Dan Kara, director of research for the market intelligence division at Software Productivity Group in Northboro, Mass. Most vendors will deliver 32-bit tools that support development of applications that will run on 16-bit desktops, but they are likely to phase out this support over time, he said.

Like other corporate developers, Dani said he doesn't see a rapid migration of end-user desktops from Windows 3.1 to Windows 95, given the hardware upgrade costs involved. So he said he believes it will be important for tool vendors to continue to support application deployment on 16-bit systems.

Developers working on applications that will be deployed on 32-bit systems said a key feature of the 32-bit tools will be the ability to use software components called OLE controls (OCX). OCXs are pre-existing, reusable software building blocks that can be purchased from third-party companies or built in-house.

"One of the main things we're looking forward to is support for OCXs," said Christopher Waters, senior applications software engineer at SBM Computers and Communications Corp. in Easton, Pa., which uses Visual Basic.

Waters said he expects OCXs to be easier to work with than their 16-bit predecessor, Visual Basic custom controls. They can also be customized by developers.

Because the new generation of 32-bit development tools will also run under Microsoft's Windows NT, they may have the side effect of boosting the fortunes of NT as the mature development platform of choice, Kara said.

Middleware gains weight

- A recent study predicts the middleware market will grow from **$1 billion** in **1994** to **$3 billion** in **2000.**
- **73%** of the middleware market comes from people connecting databases to mainframes. Driven by client/server applications and downsizing, this will fall to only **19%** of the market by **2000.**
- Message-oriented middleware will make up **23%** of the market in **2000.** Object request brokers will hold **16%** of the market. Distributed transaction processing monitors will take **25%.**

Source: Ovum Ltd., London

Watcom compiler gets visual interface

The combo should simplify C/C++ coding

By Elizabeth Heichler

Watcom's latest push to make its cross-platform C and C++ compiler easier to use involves the integration of a visual programming interface with development tools.

Specifically, Watcom C/C++ 10.5, which ships this month from the Waterloo, Ontario-based division of Powersoft Corp., includes Visual Programmer from Blue Sky Software Corp. in La Jolla, Calif.

Making it easy

The combination of Watcom C/C++ and Visual Programmer will simplify the process of coding user interfaces and "eliminate a ton of legwork," according to Dan Springate, who uses the tool to develop custom applications for the financial industry at D. L. Springate Securities in Sierra Madre, Calif.

That is because Visual Programmer can graphically build user interface screens and then automatically generate Microsoft Foundation Classes (MFC) code for 16-bit or 32-bit Windows environments. MFC is a Microsoft Corp. C++ class library that gives developers a base level of Windows graphical user interface functionality for their applications.

Watcom C/C++ 10.5 supports development that targets the prerelease version of Microsoft's Windows 95. Following the general release of Windows 95, Watcom said it will issue a free upgrade that supports it as soon as possible.

Al Fox Television Stations, Inc. in Hollywood, systems analyst Charles Knotts said he has found that the new Watcom/Blue Sky package requires fewer systems resources than IBM's VisualAge for C++, although he doesn't think it is as powerful.

The ability to use a single C/C++ development environment to target multiple deployment platforms is one of the highlights of the Watcom package, according to Knotts (see box). Knotts said he is pleased that Version 10.5 includes support for OS/2 Warp as a target environment.

Another addition to Watcom C/C++ 10.5 is the Infobase CD-ROM, a copy of the comprehensive help database used by first-level support staff at Watcom. The disk includes search facilities to make it easier for users to find information about specific problems, a spokeswoman said.

Watcom C/C++ 10.5 has a retail price of $350 and costs $199 for a competitive upgrade. Current customers can pay $129 for an upgrade.

[redacted]

CenterView Software, Inc. has announced Choreo 1.1 for Microsoft Corp.'s Visual Basic.

According to the New York company, Choreo 1.1 for Visual Basic extends Visual Basic with a component-based tool set that lets developers take advantage of high-end, client/server development capabilities using industry-standard tools. Developers can use Choreo 1.1 for Visual Basic to create client/server applications without having to program to database application programming interfaces.

Choreo 1.1 for Visual Basic includes native database drivers and supports stored procedures and commands in relational databases, including Microsoft SQL Server 4.2 and 6.0, Oracle Corp.'s Oracle7 and Sybase, Inc.'s Sybase SQL Server 10 and 4.2.

Choreo 1.1 for Visual Basic requires 9M bytes of hard disk space, a VGA or higher resolution monitor, Microsoft's Visual Basic 3.0 and Windows 3.1 or Windows for Workgroups.

Choreo 1.1 for Visual Basic costs $595.

▶ *CenterView Software*
(415) 873-1295

Visual Numerics, Inc. has announced the IMSL Math Module for C++, a new module in its ObjectSuite family of object-oriented development tools.

According to the Houston company, the module provides building blocks for programmers that help speed the development of C++ software applications. Users can embed the module's precoded algorithms directly into C++ applications and avoid writing the code from scratch.

The IMSL Math Module for C++ is divided into six sections containing classes of algorithms that correspond to natural nomerical analysis concepts: Complex Arithmetic, Vectors, Matrices, Matrix Factorization, Splines and Pseudorandom Number Generation.

The module supports PCs running Microsoft Corp.'s Windows with Win32s or Windows NT. It also supports Unix workstations from Sun Microsystems, Inc. and Hewlett-Packard Co.

The IMSL Math Module for C++ costs $695.

▶ *Visual Numerics*
(713) 784-3131

Verimation, Inc. has introduced VCOM, a message-oriented middleware application for application integration.

VCOM was designed to provide a consistent interface to data communication for application systems development across a range of platforms. According to the Woodcliff Lake, N.J., company, VCOM provides an application interface that supports multiple programming languages and is consistent among supported platforms.

VCOM supports a range of operating systems including Windows, MS-DOS, IBM's MVS, OS/400, AIX and OS/2; Digital Equipment Corp.'s VMS and Ultrix; and Hewlett-Packard Co.'s HP-UX.

Pricing for VCOM is based on processor power and starts at $1,200. It is also available for client/server implementation starting at $135 per client.

▶ *Verimation*
(201) 391-2888

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Warehouses

CONTINUED FROM PAGE 71

Molby, technical leader of information warehousing at GE Lighting, a division of Cleveland-based General Electric Co.

GE Lighting will stick with its Oracle databases for both production and warehouse systems, Molby said.

Regardless of whether users choose to run one or several different databases, they lament a lack of administration utilities for warehouses.

Filling the space

To fill that gap, Red Brick plans to ship its Enterprise Control and Coordination software later this year. It is a partially graphical management console that lets database administrators track the performance of Red Brick warehouses.

Among the product's key functions are the following:

- Management of information about material that resides on Red Brick databases, such as indexes of where and how much data is in the warehouse.
- Tight password control and other security features.
- Management of several instances of the database as they are copied to remote sites.

Brick warehouses

The following are new data warehouses from Red Brick:

Warehouse for Workgroups	Warehouse XPP
Supports up to 30 named users	Runs on IBM's RS/6000 SP massively parallel hardware*
Supports up to 5G bytes of data per table	Automatically routes queries to least-used node
Lacks data partitioning	$40,000 to $850,000, depending on number of processors and users
$11,000 to $30,000, depending on number of users	

*Due to support Unisys' Opus in November

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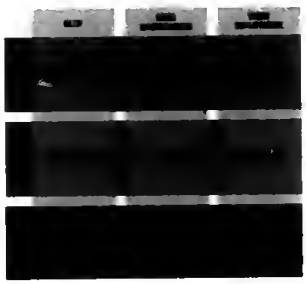

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Management

INSIDE:
CALENDAR, PAGE 77

Will you HELP?

IS staffers are feeling the effects of high stress and low morale. What you do to improve the situation can boost the bottom line — or set loose a chain reaction of ill will and cynicism.

By **Rochelle Garner**

Downsizing. Outsourcing. Re-engineering. In order to remold information systems into that new organizational paragon known as a valued business partner, chief information officers are changing the very fabric of their departments. They're ripping apart once-reactive environments and weaving in new textures of customer responsiveness, development nimbleness and business understanding. This is scary stuff.

And for good reason. At best, IS faces new — perhaps unwanted — tasks and responsibilities. At worst, it faces downsizing, with accompanying layoffs or transfers to IS outsourcers. Whatever the outcome, most IS professionals now work in an uneasy climate of high stress and low morale.

For proof, consider the Ninth Annual *Computerworld* Job Satisfaction Survey, published May 29: Of the 571 IS managers and personnel who responded to the survey, 62% of both middle managers and the rank and file report that stress levels in their departments have increased since the previous year. Of the rank and file, 45% reported a decline in job satisfaction.

Given the human reaction to change, these emotions are unavoidable. Left unchecked, they can corrode productivity, reduce performance and block communication. Evidence exists that improving morale has the opposite effect.

In its 1993 study, "High Performance Work Practices and Firm Performance," for example, the Department of Labor found that Fortune 500 companies with "more progressive management style, organizational structure and reward systems had higher rates of growth in profits, sales and earnings per share over the five year period from 1978 to 1983."

Obviously, there's good reason beyond mere altruism for improving morale and alleviating stress. But how, short of handing out Prozac, do you do it?

"You have to have a clearly defined vision of where you're headed, show why it's important and where everyone fits

Help, *page 76*

HELP

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ih," says Mark Hess, vice president of the transition strategies service at Gartner Group, Inc. Hess counsels CIOs on the ways and means of reinventing their organizations. One of his prime directives: "The message has to be said over and over and over again."

"C" is for communication

That's right, constant communication. Management gurus cite it as the single most critical weapon for alleviating employees high stress and low morale. And we don t mean saying something just once or twice.

"One of the most powerful things for improving morale is keeping people informed, even if it's bad news," says Madeline Weiss, president of IS consultancy Weiss Associates, Inc. in Bethesda, Md. "What's important is to constantly reaffirm the organization's vision."

That's been Gerry Gorman's motto at Caterpillar, Inc.'s Wheel Loaders and Excavators Division in Aurora, Ill. Not that Gorman, who is information services division manager, is preparing his staff for any imminent layoffs. Caterpillar has virtually guaranteed job security to three quarters of its employees for the next four years. The remaining one quarter are represented by the United Auto Workers unioo, whose rancorous relations with Caterpillar have resulted in a contract deadlock. But with three shifts a day and many IS personnel just a beeper's call away from being hauled back to the office, stress within the IS ranks had become an important management concern.

Compounding the problem are internal surveys that show IS as, shall we say, less than responsive. "We saw that people viewed us as technically competent but not in tune with where our business was heading," Gorman explains. "Morale was low because people viewed IS as a liability."

Gorman's first step to combat the potentially damaging emotions was to gather "internal market intelligence" — informatioo about the activities and needs of users and Caterpillar management — to more fully understand the business demands within the company. "As we looked at ourselves, we saw examples of where we'd beeo under the gun because we didn't know our customers' needs," Gorman says.

At the same time, Gorman coostantly explained to his staff the need and rationale for change. The rationale to become closer to the internal customer. The means: establish an important new role in the IS organization — that of the account representative — which acts as a conduit between the business community and the IS workforce.

"Our missinn is to become a strategically valued asset, aligned to our customers," Gorman says. "Achievng that all comes down to communication."

It also comes down to new skills that equip the IS staff to work with others. This is why Gorman contacted Ouellette & Associates Consulting, Inc., an IS managemeot consulting and training firm in Bedford, N.H. So far, sbout 20 volunteers eager to become account representatives have taken Ouellette's two-day workshop on "Consultancy Skills for IS Professionals." Many more in IS have taken classes on negotiatioo as preparation for managing outside contractors.

Gorman is earoing praise for easing the change-induced blues by fostering the two "Cs" — communicatioo and career growth.

"I would give management an A in trying to make us stronger with career development and satisfaction," says Marjorie Kaltenecker, systems analyst and account representative at Caterpillar's medium wheel loader product group. "And because management holds weekly staff meetings to inform us of our objectives, everyone feels included. That has led to a big improvement in overall morale," she says. Gorman's staff reports that everyooe in Caterpillar's IS organizatioo practices what they preach.

Management disconnect

Like other managers who have successfully alleviated stress, Caterpillar s Gerry Gorman succeeded in one extremely important area: He made sure that IS managers walked the walk they d been talking about. And that highlights a critical aspect of managing stress. The best intentions, without widespread and wholesale management commitment, adds cynicism to the already unpleasant emotional brew.

That's the case at a large insurance company where, because emotioos have reached such a pitch, managers asked not to be identified. "We try to fight morale problems in the ranks by emphasizing that the management group is walkiog the talk," one senior manager says. "Unfortuoately, there are a lot of differences in how managers interpret that talk and that does feed the cynicism." The result is rampant demoralization for the manager and his staff.

It's a big issue that can be easily lost in the turmoil of implementing change. Take National Semiconduetor Corp. in Santa Clara, Calif. Now in the throes of the second phase of redesign, its IS organizatioo wants to increase information access, boost corporatewide productivity and become a "core competency" in the business of producing semiconductors. Already, National Semiconductor's IS group has compared notes with IS departments at competitors Intel Corp., IBM, Texas Instruments, Inc. and Motorola, Inc. to hash out issues such as reporting structure, skills transformation and best business practices.

"We want to move faster with new technologies and at the same time, provide a quantum improvement in customer satisfaction," says Thomas Brooks, one of two leaders of the redesign effort who now has the title of business partner to National Semiconductor's 6,000-person Analog Division.

Obviously, National Semiconductor has grand — perhaps even grandiose — plans for reshaping IS. To prime the employee pump for this new agenda, the company has invested in an impressive list of training classes, ranging from fundamentals of finance and accounting to consulting and marketing for IS professionals. Eventually, Brooks says, all of National Semiconductor's 500-plus personnel will receive at least a truncated version of some of its business-oriented training.

So what's the problem? Communication and wholesale commitment. "Our executives say they want us to attend forums so we can interact with business leaders and become IS consultants," says Gregory Sherwood, principal programmer/analyst at National Semicoductor. The trouble is that some middle managers put out a contradictory message. "A lot of people in IS feel their performance reviews will be hurt if they are away from their desks," he says. In other words, not everyone has absorbed the message behind National Semiconductor's organizational changes.

The result: Rising stress — which tends to ebb and flow with the tide of communication. "We know that our IS people don't feel comfortable now because uncertainty and the unknown is pretty stressful," Brooks says. "Maybe in a year they'll feel better."

Perhaps, but only if National Semiconductor improves communication.

"In the earlier phase of the redesign, communication was constant — and you need that to reassure people that change will be positive," says Kay Marsh, a senior systems programmer at the company. "Right now, that communication has broken down."

It just goes to show that when it comes to managing change, vigilance must be eternal. And from the manager's perspective, it had better be internal, too. ■

Garner is a freelance writer in San Carlos, Calif.

[redacted]

Managers, you too can undermine morale and kill productivity. Just follow these simple instructions:

1. Foster hypocrisy — say one thing and do another.
2. Bad-mouth or ignore the CIO's objectives.
3. Pretend to listen to your staff — then ignore their concerns.
4. Explain your message — but only once.
5. Slug out your disagreements with other managers in the open.

[redacted]

Looking for ways to boost morale? Consider the course of action taken by Caterpillar's Gerry Gorman:

1. Begin by studying the business issues and needs of your company.
2. Explain the rationale for change to IS staff members.
3. Train IS staffers in skills required for the new IS career track: i.e., internal consulting, managing contractors.
4. Make sure managers consistently "walk the walk," not just "talk the talk."
5. Meet regularly with IS staffers to discuss objectives.

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To: Our Customers and Partners
From: Brad Silverberg
Re: THANK YOU!

We are finally at the end of the long journey, and I want to thank all of those who have been our companions. We have completed development of Windows® 95, an operating system that will allow computer users everywhere to get more out of their personal computers. We have been helped by people across the spectrum: from individuals such as John R. Garman, Chief Information Officer, at NASA Johnson Space Center, to Adam Baratz, who is nine years old, to software developers, computer system manufacturers, and many others. We could not have made it without the help we have received from all of you.

A key part of our journey was the Preview Program—the program whereby over a million individuals got to use an early-release copy of Windows 95. It was also a chance for us to learn about the issues that you'll face in your own experiences with Windows 95. I would like to report to you what we have learned.

We learned things about our product that we needed to fix. As a result we have improved setup and our support for your existing software and hardware. Along the way we fixed many bugs that have helped us improve the product.

We also used the Preview Program to test our support capabilities for Windows 95. We have trained hundreds of support engineers and have made arrangements with five companies who will help us provide support for Windows 95. From the size of the initial orders we have seen placed by retailers for Windows 95, it is possible that there may be delays in getting through to our support personnel during the initial weeks. We apologize if you experience any inconvenience and want you to know that we are working hard to minimize this. We will have almost as many people taking calls for Windows 95 as we have taking calls for all our other products combined and will be active on electronic forums to help, too.

But perhaps the most common theme to emerge was that people need accurate information direct from Microsoft to help them evaluate or plan their migration to Windows 95. To address this we have created the WinNews Newsletter, where you can get our best, no-nonsense assessment of:

- the strengths and weaknesses of Windows 95
- its compatibility with existing software and hardware
- the best practices and tools to help minimize cost of deployment

To join our WinNews Newsletter mailing list, send email to **enews18@microsoft.nwnet.com** with *subscribe winnews* as the only text in the body of your message; or visit our Windows 95 forums on CompuServe, America Online, or The Microsoft Network, or our Internet web page at **www.windows.microsoft.com**.

We think Windows 95 is a wonderful product and will be a significant improvement to Windows 3.1. It has been made immeasurably better as a result of your help.

I, and all the members of the Windows 95 product team, thank you.

Brad Silverberg
Senior Vice President
Personal Systems Division
Microsoft

Calendar

AUG. 20 - SEPT. 14

MANAGEMENT

Association for Information Systems (AIS) Americas Conference on IS. Pittsburgh, **Aug. 25-27** — Seminars will include "Interorganizational and Distributed Systems," "IS Productivity and Outsourcing," "Measuring and Assessing IS Satisfaction," "Organizational, Workforce and Human/Technological Issues in Software Development" and "On-line Information Resources." Fees: $200 for academic members; $250 for academic nonmembers, $800 for corporate members; $850 for corporate nonmembers. Contact: AIS Conference Registration, Rockville, Md. (301) 897-5768.

Total Trainer Program 1995. Orlando, Fla., **Aug. 27-31** — Also offered **Sept. 10-14** in Chicago. Keynotes include "The New Trainer: Interactive, Wired and Totally Uoburnt-out" by Elliott Masie, president of The Masie Center, and "Creating and Managing a Performance Technology Organization" by Jim Muller, manager of performance technology at Hewlett-Packard Co. Contact: Lakewood Conferences, Minneapolis, Minn. (800) 707-7792.

Identifying and Maximizing Business Applications for Networked Multimedia. Chicago, **Aug. 28-29** — A specialized conference addressing key issues in optimizing and implementing multimedia networks. Seminars will include "Entering the Virtual Workplace," "Multimedia Standards" and "Determining the Organizational Requirements for Building a Networked Multimedia Infrastructure." Fees: $1,195 per person; $1,095 per person for three to four attendees from the same company; $950 per person for five or more attendees. Contact: ICM Conferences, Inc., Chicago, Ill. (312) 540-3083.

USER GROUPS

Open Software Foundation Distributed Computing Environment (DCE) User and Developer Conference. Boston, **Aug. 21-23** — Includes four related conferences on DCE technology, deployment, tools/products and success stories. Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3870.

MicroStation Forum and Exhibition. Chicago, **Aug. 22-24** — Also offered **Sept. 12-14** in Santa Clara, Calif. Topics emphasize real world computer-aided design solutions via industrywide offerings of MicroStation-related software, hardware and services. Contact: MicroManagement, Inc., Huntsville, Ala. (205) 837-8694.

TECHNOLOGIES

IAAI-95, The 7th Annual Conference on Innovative Applications of Artificial Intelligence. Montreal, **Aug. 20-25** — Contact: American Association for Artificial Intelligence, Menlo Park, Calif. (415) 328-3123.

The Desktop Videoconferencing Conference (DVC). East Rutherford, N.J., **Aug. 22-24** — Keynote speaker William Strauss, president of Forward Concepts, will discuss "How the Choice of Technologies Today Can Accelerate or Derail a Market Just Now Gaining Momentum." Contact: Dave Allen, DVC director of communications, Port Washington, N.Y. (516) 883-3382.

INDUSTRIES

Market-Driven Product Definition — Best Practices Implementation. San Francisco, **Aug. 21.** — Also offered **Sept. 30** in Phoenix and Scottsdale, Ariz., and **Oct. 26** in Atlanta. Topics will include resourcing product definition efforts, linking products to strategy, conducting successful customer visits, defining customer requirements and maintaining customer focus throughout product development and self-assessment. Fees: $895 per person; $795 per person for groups of three to five people, $745 per person for groups of six or more. Contact: The Management Roundtable, Boston, Mass. (617) 232-8080.

Calendar announcements should be submitted at least six weeks prior to the event and include the title of the event, dates, location, theme or focus, keynote or major speakers, principal topics and a contact person, organization and phone number.

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The CW Guide to Workgroup Software

Oh, what a relief it is!

Discussion database gains ease implementation pains

By Lynda Radosevich

After seeing a Notes display more than two years ago, Neil Whitman figured the groupware package was just what his temporary placement agency needed. Employees could scan candidates' resumes into a Lotus Development Corp. Notes database and track related telephone conversations in a linked discussion database. Then when job opportunities arose, other employees could quickly track potential workers.

But shortly after installing Notes and related imaging software, the Notes server began "crashing and burning all day long," says Whitman, vice president and sales manager at Aide, Inc., a Greenville, S.C., placement agency for engineers and information systems managers. Rather than make the firm more productive, the product ate into the staff's time.

The catch

Months of headaches later, Whitman and Lotus support staff solved the problem by running Notes and a mass storage server on separate machines. Now Notes runs well, and glitches are the exception, not the rule. The company finds Notes vital, but administration is still a major resource demand. Aide pays $2,900 a year for Lotus' premium support plan, and managing Notes internally is still a big job. The lesson learned: "Whomever you put in charge, don't just add this to what they do," Whitman says.

Just about everyone has heard of Notes, the workgroup software that promises to turn companies' networked PCs into something demonstrably useful. Perhaps Notes' most commonly employed and worthwhile application is the discussion database — a digital commons for conducting electronic conferences and posting information. Since Notes became popular, an entire industry has emerged around discussion database software (see chart page 80).

However, the discussion database sector is a new market and users are running into obstacles they didn't foresee and that vendors never mentioned. Some problems are technical: unstable servers, lost network connections and heavy support requirements, to name a few. More problems are human: uneven participation, redundant and disorganized content and, in some cases, user resistance. Still, converts say they couldn't live without the organizing features of discussion databases.

"We needed a quick way to distribute vast amounts of information that was historically kept in people's heads," says Kris Kruse, president of Document Repository, Inc. in San Francisco. The legal support company installed Trax Softworks, Inc.'s TeamTalk to improve project management. "Now it's become a part of our life," he says.

Features vary among packages, but standard functions include the ability to post messages, documents and other files to a common database. Users can look at summaries of the information, search it or slice it in different ways. Administrators can control who views and contributes to the databases. Companies can keep field offices up to speed by synchronizing information on home and remote servers. Other common features include electronic mail and customization tools.

These tools can replace more traditional forms of communication such as fax and E-mail broadcasts, phone calls and live meetings. The big benefit is that information and discussions are documented and organized.

However, the shock for many customers — as it was for Whitman — is the huge amount of support that discussion databases require. Pilot projects may run smoothly, but when the application hits the big time, the real work begins. Tasks such as adding and deleting users and managing access rights to the databases gobble up an administrator's time. Also, several packages require dedicated servers. If the discussion databases are heavily used, keeping the servers and network connections running is a major time burner for many variable and arcane reasons.

Start small

In general, the tried-and-true method of starting with a pilot project can work out some of the technical bugs before launching a full-blown application. "Invest in a small system and pilot it because it's hard to see what you can and can't do without trying it out," says Bob Edelman, manager of technical development at Kaplan Education Centers in New York and user of SoftArc, Inc.'s FirstClass.

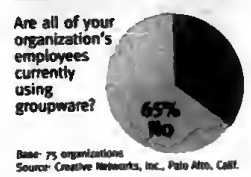
However, IS managers can count on new problems once the application is in production. Overcoming technical problems is often a matter of putting in the time to work out kinks. To keep support issues to a minimum, companies can opt for simple, limited discussion databases such as The Mesa Group, Inc.'s Conference+ or Team Software, Inc.'s Channels rather than sophisticated but trickier packages such as Notes or Attachmate Corp.'s OpenMind. Of course, that also means opting for more limited functionality.

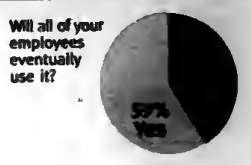
Users also find that discussion databases can become unwieldy. The very feature that makes them useful — their ability to handle mass participation — means that databases can grow out of control once users adapt to the new medium.

That's what Andersen Consulting, one of the earliest and largest Notes sites, discovered not long after Notes hit critical mass in the firm. "When we first started off doing this, we assumed we'd just throw everything into a 'bag' and people would look around in the bag and find what they wanted. We found that doesn't work. You need to have more ways to categorize the information," says Hugh

Discussion databases, *page 80*

GROUPWARE IS A RAPIDLY EMERGING CATEGORY OF NETWORK SOFTWARE, BUT IT ISN'T FOR EVERYONE. HERE'S WHAT SOME USERS SAY:





Base: 75 organizations
Source: Creative Networks, Inc., Palo Alto, Calif.

Relax, discussion databases such as Notes will ultimately boost productivity. That is, if you can get beyond the instal- at on headaches, says Neil Whitman of A de Inc. in Greenville, S C.

Will McIntyre

Tips from the pros

Want to minimize headaches when installing a discussion database? Here are some tips from users who've been there:

- **Make sure that corporate culture supports information sharing. For instance, if a company's bonuses and rewards are based on individual performance rather than team performance, you are likely to find resistance to discussion databases.**

- **Categorize the discussion database information so users don't get lost. Companies can create pop-up documents that direct users' input or assign database content managers.**

- **Spend a lot of time up front before launching a discussion database. Vendors' demonstrations don't take into account your complex needs, so test several packages and talk to other users before deploying an application.**

- **Dedicate people to ensure the discussion database's success. Initial support takes more effort than most users think, so don't pile administration duties on top of a busy person's workload.**

- **Pick a key application that will have broad appeal and use it to attract users to the discussion database.**

Heads up!

Here are two companies scheduled to release products with discussion databases in the near future:

Microsoft Corp. in Redmond, Wash., is expected to deliver Exchange late this year or early next year. Exchange's appeal lies in a reportedly robust architecture and tight integration with Windows and Windows NT. For more information, call (800) 426-9400 or http://www.microsoft.com.

Novell, Inc. in Orem, Utah, is slated to release GroupWise XTD early next year. For more information, call (800) 861-2507.

— Lynda Radosevich

PRODUCTS WITH DISCUSSION DATABASES

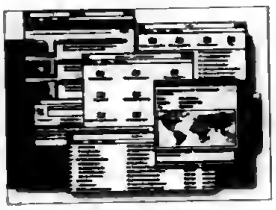
NOTES
Lotus Development Corp.
Cambridge, Mass., (800) 346-1305

OPENMIND
Attachmate Corp.
Bellevue, Wash., (800) 426-6283

COLLABRA SHARE
Collabra Software, Inc.
Mountain View, Calif., (800) 474-7427

CONFERENCE+
The Mesa Group, Inc.
Newton, Mass., (617) 964-7400

CHANNELS
Team Software, Inc.
Houston, (800) 783-1112



TEAMTALK
Trax Softworks, Inc.
Culver City, Calif., (800) 367-8729

FIRSTCLASS
SoftArc, Inc.
Markham, Ontario, (905) 415-7000

ORACLE DOCUMENTS
Oracle Corp.
Redwood Shores, Calif., (415) 506-7000

TEAMOFFICE
ICL Teamware Division
Santa Clara, Calif., (408) 982-9946

IBM WORKGROUP
IBM
Armonk, N.Y., (800) 426-3333

TEAMLINKS OFFICE SERVER
Digital Equipment Corp.
Maynard, Mass., (800) 344-4825

Discussion databases

CONTINUED FROM PAGE 78

Ryan, a partner at Andersen Consulting.

Andersen now employs knowledge managers who review and classify all information added to discussion databases. The knowledge managers also weed out redundant and dated material. It takes half of one person's time to manage a database that receives 20 to 30 queries a day.

This extreme level of database management is crucial because Andersen's databases store more than discussions about transitory projects; they contain the knowledge base that the consulting company uses to run its business, Ryan says.

Participation

Some firms find their biggest challenge isn't building discussion databases but getting people to participate. Inertia affects busy employees who don't want to stray from established routines to get comfortable with a newfangled piece of software. For instance, when Kruse introduced TeamTalk to his company, "the big struggle was that it was a corporate culture change," he says.

One explanation for resistance is that unlike live meetings or phone calls, electronic conferences are unforgiving. For instance, "you can challenge what I say to you face to face, but you can never challenge what the system remembers you saying or doing," says Tom Koulopoulos, president of Delphi Consulting Group, Inc. in Boston.

If the necessary people don't collaborate, discussion databases lose much of their value. Therefore, getting foot-draggers involved should be a priority. Today, groupware typically enters organizations through a department or at some other low level, according to a report released earlier this month by Creative Network, Inc., a consultancy in Palo Alto, Calif.

If support doesn't bubble up from the user base, the best way to ensure participation is a dictum from the top brass. In Document Repository's case, Kruse is the president, so he mandated it, he says. Kruse notes that the workgroup software is now part of the company's daily life.

In addition to using a heavy hand, firms can help overcome cultural resistance by starting with a discussion database that has broad appeal, experts in the field say. "We're finding out people's niche of interest, creating a database around it and using that as the straw man to get members used to using Notes for mass communication," says Richard Arns, executive director at Chicago Research & Planning Group, a chief information officer trade organization in Barrington, Ill.

Inertia

Conversely, if people grow accustomed to one brand of discussion database, getting them to change can be a thankless and sometimes impossible task. While this is true for any software, it's more true for software that requires mass participation. The implications of getting trapped into a specific package are significant because the market is so young that there aren't standards yet. Compatibility between programs is rare. And new products can surpass old ones, making it attractive to change brands.

Whirlpool Corp., for example, jumped at the chance to test Collabra Software, Inc.'s Collabra Share when the software was unveiled last year. Whirlpool is a large Notes site, but Collabra Share offered the unique ability to let users of DOS and terminals participate in group forums via E-mail. Also, at the time, Collabra Share's most specialized and limited $69 per user price was significantly lower than Notes, which cost $495. Since then, Lotus has introduced several less expensive options for Notes.

After a year of testing, however, Whirlpool has decided against Collabra Share, not because it is a bad product but because Notes has momentum in the company. "Notes is hard to displace," says Mark Penwell, a senior systems analyst at Whirlpool. "Once people have a taste of its full capabilities, anything else jades in comparison."

For that reason, analysts say users should carefully evaluate the packages on the market and make certain the vendors' strategies are aligned with the users' goals. For instance, if connecting to the Internet is a goal, users should make sure that Internet connections are in the vendors' plans. ■

Radosevich is a freelance writer in Belmont, Mass.

DESKTOP DESIGNS DRIVEN BY "BIG 3"?

By Tom Koulopoulos

Microsoft Corp., IBM (a la Lotus) and Novell, Inc. are forming the trident that will define tomorrow's desktops for collaboration. Each of the groupware offerings — Novell GroupWise, Microsoft Exchange and IBM WorkGroup — are intended to provide more than just tools for collaboration; they are building work environments. And each product's approach has a distinct advantage.

The following are some predictions of how the "Big 3" environment vendors may help redefine the desktop:

GROUPWARE ENVIRONMENTS TAKE OVER THE DESKTOP

Groupware environments such as Notes are working on features that will enable users to view the process as well as the information. Ironically, Notes was principally an interface metaphor. If we carry that theme further, it is possible to envision an entirely new operating system architecture based on the groupware paradigm. These will be environments that represent vast warehouses of knowledge about the way a business is run and how people and information add value to a business process. Look for groupware to become an intelligent environment that manages work.

APPLICATIONS DISAPPEAR

Intelligent environments will be replaced by a Peg-Board approach that uses methods such as Novell's applets. These are pieces of applications provided as objects that interface through standardized application programming interfaces (API). Ultimately, even the operating systems will disappear. They will be replaced by business rules, repositories and standardized APIs for invoking applets, such as IBM's FlowMark or Novell's FileNet-based workflow offering, code-named Ensemble.

Will this mean that all applications are ultimately gobbled up by the three major players and made part of standardized environments? Unlike the major automobile manufacturers that cannot possibly offer a customized car for each buyer, business environments are infinitely flexible, which defines a business's competitive advantage. It's difficult to imagine that diversity in the tool's groupware support would not be considered attractive.

THE EVOLUTION OF A BUSINESS OPERATING SYSTEM

Imagine also that this environment will be a desktop that consists of agents, each with a set of process rules that ultimately reside in a corporate process library. The agents reference these rules and recombine them in many ways, depending on the needs of the user. When a rule changes in the repository, it is automatically picked up throughout the operating environment. In this sense, the environment becomes the organization memory.

With the creation of these component-based environments, users no longer see or care about applications — they see only a process. This shift will define the user interfaces of the next decade. And it is, initially at least, the paradigm for groupware. But the paradigm will expand beyond groupware to replace operating systems, applications, workflow and groupware with a single convergence: the business operating system, which is an amalgam of process intelligence and applets.

Koulopoulos is president of Delphi Consultants, Inc. in Boston.

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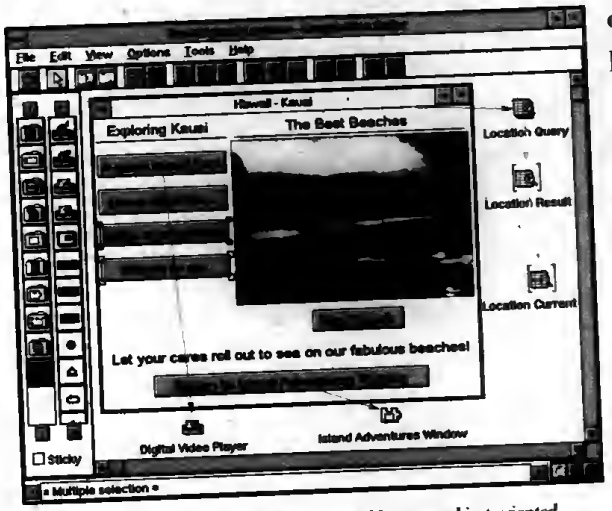

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GroupWise, Notes leverage own strengths

By Kevin Burden

Before anyone starts thinking Lotus Development Corp.'s Notes and Novell, Inc.'s GroupWise are interchangeable, let's quickly identify their differences.

Notes is a powerful client/server platform for developing and deploying true groupware applications. It is just as effective in very large, enterprisewide setups as it is in small workgroups. However, it trails behind GroupWise in ease of use and as a messaging platform.

GroupWise has some groupware capabilities, but it's chiefly a messaging system that integrates electronic mail, group scheduling, electronic forms, personal calendaring and time management tools into a single box. GroupWise lacks the programming language built into Notes and relies on its new integration with Collabra Software, Inc.'s Collabra Share for electronic discussion capabilities (see story, page 85). The GroupWise/Collabra link is scheduled to ship next month.

GroupWise most often shows up in small to medium-size firms, says James Ford, consulting associate at Connexus Consulting Group, Inc. in Andover, Mass. "It's not meant to run over wide-area networks."

GroupWise

Novell, Inc.
Provo, Utah
(801) 429-7000

The categories listed were rated as the most important by users of both products. The wild card category held specific importance to that product's users.

*Wild card category
Percent of respondents

It's amazing what tight integration can do for the overall performance and ease of use of a product. GroupWise allows users to manage E-mail messages, scheduling and calendaring tables and personal time management tools through a single main window.

Nearly 90% of the users interviewed gave GroupWise above-average ratings in performance; 60% said it was outstanding, often citing the suite's integration as the reasoo for the stellar scores.

If this top-notch integration sounds too good to be true, it just might be when you hear the catch. GroupWise requires customers to use the E-mail system it provides instead of working with a variety of E-mail systems like most groupware products. This explains why nearly 70% of the respoodents gave E-mail compatibility favorable ratings.

Novell builds its own gateways to connect GroupWise oers to a collection of other E-mail systems, but users oo the other end of the gateway lack the forms routing and scheduling abilities that make GroupWise the ultimate groupware option, Ford said. GroupWise has two traits that can be seen as knocks or benefits, depending on your view.

First, scalability is not its strength. "If you have s very large enterprise, you're just not going to connect everyone using this technology," Ford says. "But since we typically see [GroupWise] in small to medium single-location companies, it has not been much of a problem."

Second, it doeso't have a programming language. Custom gronpware applications aren't possible, hut in turn, less overhead is required from programmer support and administration. And since ease of administratioo is the category rated to be uniquely important to GroupWise users, the lack of s lnnguage may preveot a lot of headaches.

Even so, ease of administration fails to get the marks that would indicate it's among the product's best features. Users can centralize or decentralize administration and automatically configure the server to clean up problems without waiting on the administrator. Its drawback is that it's still done in DOS.

COMPUTERWORLD BUYERS SATISFACTION SCORECARD

What we did

Computerworld asked 50 users of each product to rate their satisfaction in key areas. The percentages in the charts represent users who said performance in each category was good or very good. The remaining majority gave the areas "average scores," with an insignificant number rating them poorly.

Notes

Lotus Development Corp.
Cambridge, Mass.
(617) 577-8500

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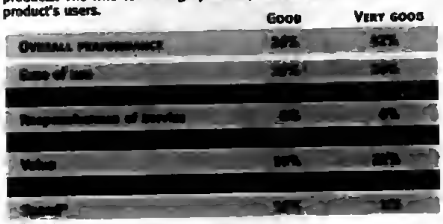

*Wild card category
Percent of respondents

That 42% of the responding users say performance is very good appears respectable. It is even more impressive that 44% of the responding companies ran six or more Notes servers, compared with only 28% of GroupWise osers.

"Lotus can point to several installations with 10,000 to 15,000 seats — Coopers & Lybrand and Price Waterhouse, to name a couple," Ford says. "No others can do that."

With more than half the respondents saying ease of use is no better than average, Notes users are likely to insist that the next version show an improvement. On the end-oser side, Notes Release 4.0 (available late this year) will replace the unconventional Notes mail interface with the popular CC:Mail screen. And developers can look forward to several context-sensitive improvemeots aimed at minimizing confusion. For instance, the new Notes version will display only menu options that affect a developer's task.

Regarding the current Notes 3.x line, users say they generally like its navigation capabilities once they're trained in it, hut they wish Lotus' labeling of menn options was more consistent with other Windows programs. Others say they feel overwhelmed by all its options, although its customizatioo abilities make piloting it more bearable.

The same applies to security. "Notes has all the security anyone could want, but the implementation can be very complex and confusing," Ford says. Some users say its multiple levels are overkill. Other nsers who require rock-solid security like the control but admit it's not easy to learn.

Users also want E-mail compatibility and speed to improve. "When you use a mail package other than the one in Notes, you lose functionality, specifically high-end workflow functions like forms routing," Ford says.

Many users complained about the speed of Notes but say faster client machines helped a lot. "We were told 386s would be acceptable — barely," one user says. "Our 486s are much better [than 386], but it's still slow when opening databases."

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(801) 429-7000

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	Good	Very good
Overall performance	28%	60%
Ease of use	48%	30%
[illegible]	[illegible]	[illegible]
Responsiveness of service	18%	8%
[illegible]	[illegible]	[illegible]
Value	26%	20%
[illegible]	[illegible]	[illegible]
Ease of administration*	24%	8%

*Wild card category
Percent of respondents

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First, scalability is not its strength. "If you have a very large enterprise, you're just not going to connect everyone using this technology," Ford says. "But since we typically see [GroupWise] in small to medium single-location companies, it has not been much of a problem."

Second, it doesn't have a programming language. Custom groupware applications aren't possible, but in turn, less overhead is required from programmer support and administration. And since ease of administration is the category rated to be uniquely important to GroupWise users, the lack of a language may prevent a lot of headaches.

Even so, ease of administration fails to get the marks that would indicate it's among the product's best features. Users can centralize or decentralize administration and automatically configure the server to clean up problems without waiting on the administrator. Its drawback is that it's still done in DOS.

COMPUTERWORLD BUYERS' SATISFACTION SCORECARD

What we did

Computerworld asked 50 users of each product to rate their satisfaction in key areas. The percentages in the charts represent users who said performance in each category was good or very good. The remaining majority gave the areas "average scores," with an insignificant number rating them poorly.

Notes

Lotus Development Corp.
Cambridge, Mass.
(617) 577-8500

The categories listed were rated as the most important by users of both products. The wild card category held specific importance to that product's users.

	Good	Very good
Overall performance	26%	42%
Ease of use	22%	26%
[illegible]	[illegible]	[illegible]
Responsiveness of service	8%	6%
[illegible]	[illegible]	[illegible]
Value	10%	22%
[illegible]	[illegible]	[illegible]
Speed*	18%	8%

*Wild card category
Percent of respondents

That 42% of the responding users say performance is very good appears respectable. It is even more impressive that 44% of the responding companies ran six or more Notes servers, compared with only 28% of GroupWise users.

"Lotus can point to several installations with 10,000 to 15,000 seats — Coopers & Lybrand and Price Waterhouse, to name a couple," Ford says. "No others can do that."

With more than half the respondents saying ease of use is no better than average, Notes users are likely to insist that the next version show an improvement. On the end-user side, Notes Release 4.0 (available late this year) will replace the unconventional Notes mail interface with the popular CC:Mail screen. And developers can look forward to several context-sensitive improvements aimed at minimizing confusion. For instance, the new Notes version will display only menu options that affect a developer's task.

Regarding the current Notes 3.x line, users say they generally like its navigation capabilities once they're trained in it, but they wish Lotus' labeling of menu options was more consistent with other Windows programs. Others say they feel overwhelmed by all its options, although its customization abilities make piloting it more bearable.

The same applies to security. "Notes has all the security anyone could want, but the implementation can be very complex and confusing," Ford says. Some users say its multiple levels are overkill. Other users who require rock-solid security like the control but admit it's not easy to learn.

Users also want E-mail compatibility and speed to improve. "When you use a mail package other than the one in Notes, you lose functionality, specifically high-end workflow functions like forms routing," Ford says.

Many users complained about the speed of Notes but say faster client machines helped a lot. "We were told 386s would be acceptable — barely," one user says. "Our 486s are much better [than 386], but it's still slow when opening databases."

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(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep

App. Development Products ❑Yes ❑No
Networking Products ❑Yes ❑No

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COLLABRA SHARE IS UP FOR DISCUSSION

By Kevin Burden

Collabra Software, Inc.'s Collabra Share 2.0, released in February, is a relatively inexpensive groupware system devoted to discussion forums.

What users say they get is a modest but effective collaborative tool that leverages a company's E-mail system. It is compatible with Microsoft Corp.'s Mail, Novell, Inc.'s GroupWise, Lotus Development Corp.'s CC:Mail, Banyan Systems, Inc.'s messaging systems and any Messaging Application Programming Interface (MAPI) or Vendor-Independent Messaging-compliant system.

Users interviewed for this evaluation offered letter grades for Collabra Share 2.0's performance. The grades range from A (very good) to E (very poor).

USERS INTERVIEWED FOR THIS EVALUATION INCLUDE:

- Market research firm
- Information services firm
- Manufacturing firm
- Transportation carrier

EASE OF INSTALLATION

C C B

None of the users interviewed could say Collabra Share 2.0 installed without incident. Two users ran Novell's Message Handling Service (MHS)-compatible mail systems, "and Collabra is not real graceful when working with MHS," the information services firm user says. "Our main problem is there is no post and notify when using the two together. We end up having to send a regular E-mail message to notify [remote users] about their Collabra messages."

Others using Microsoft's Mail and Lotus' CC:Mail say each product worked with Collabra Share as if they were meant for each other.

Those upgrading from Collabra Share 1.0 to 2.0 faced the biggest installation challenges. "The forums in 2.0 are in a different format. It was a lot of work converting our old forums over," says the user at the information services firm.

Also, users running Microsoft's Windows NT consistently ran into cryptic error messages that barely explained what the real problem was. They discovered that Collabra will not work with the long file names that NT supports.

SCALABILITY

B A A

While installation was tough for evaluators upgrading from Collabra Share 1.0 to the client/server edition of Version 2.0, scalability was improved. "We used to get loads of complaints from users about the overall access and speed [of Share 1.0]. Now we're adding more users and workstations, and the performance is still faster," says the user at the information services firm.

Still on the wish list is a true 32-bit client to go with an NT server. The file-sharing version of 2.0 is for those without NT servers.

RELIABILITY

B B C

Crashes were not the problem for Collabra Share. Rather, the package displayed false error messages indicating something was about to crash. "It would flash messages saying the servers are unavailable or busy, or certain clients are out of memory. None of it was true," says the user at the information services firm.

Erroneous messages also popped up at the manufacturing firm. "Usually, if we try to do the task [that caused the error message] again, it works. It's just a mystery," the user says.

INTEGRATION OF THIRD-PARTY APPLICATIONS

C A A

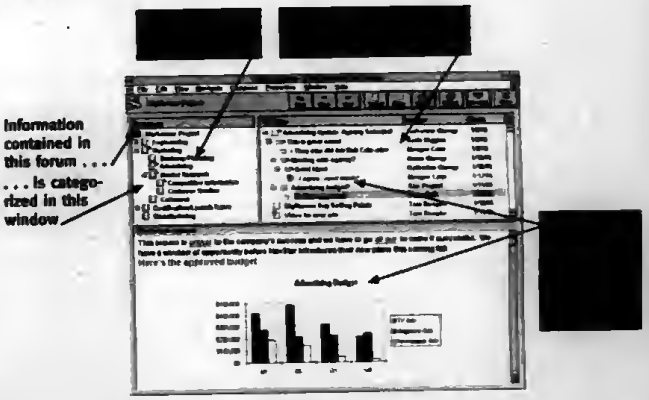
One of Collabra Share's strengths is its ability to exploit E-mail systems already in place, and quite well, evaluators said. Two users say their E-mail system worked flawlessly with Collabra Share.

"When I log in to my E-mail, it knows to automatically launch Share," says the user at the manufacturing company, which uses Microsoft Mail.

DISCUSSION FORUMS

B A A

The new set of tools alone is why 2.0 deserves these high grades, users say. InfoNavigator, a set of tool bar buttons, helps users plow through heaps of files. Hot lists let users organize information in ways that are logical to them. However, a simple change most impressed those interviewed: "The newest message is now posted on the top of the screen instead of the bottom" like in Version 1.0, one evaluator says.



Evaluators say they were surprised by the success and performance remote users had when accessing Collabra Share through E-mail or other methods such as CompuServe. They have nearly the same number of commands, and "their screens remain the same mail screens they're used to, so we don't even have to train them," says the user at the information services firm.

SECURITY

B B B

Version 1.0's security measures needed a lot of attention, according to users. Version 2.0 shows improvement over 1.0, but there are still holes. For instance, encrypted messages are supposed to be complete gibberish, but "if you have rights to get into the forum, you can use a text editor to make enough sense [of an encrypted file]," the research firm user says.

Burden is *Computerworld*'s senior researcher, Firing Line/Scorecard

COLLABRA RESPONDS

On a 32-bit client: Collabra expects to have a Microsoft Windows 95 32-bit client version of Collabra Share 2.0 available by the end of the year.

On erroneous error messages: "This problem only occurred in earlier beta versions of 2.0 and only if there was a protocol problem." Collabra product support has not seen the problem for a number of builds and says the problem was solved by engineering in the second beta version of the product.

On MHS problems: "Our product literature does not mention support for MHS mail systems." MHS customers can use one of the tools currently available to layer MAPI on top of MHS.

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In Depth

S.O.S.

Government corruption, Mafia activity and social problems fuel international piracy. But U.S. vendors and foreign users are fighting back.

(save our software)

Asia is a pirate's heaven, but some users go legit

By Roh Guth and Terho Ulmonen
IDG News Service correspondents

In early January, an employee at Lotus Development Corp.'s Asia/Pacific headquarters in Singapore bought a copy of the company's Organizer 2.0 software for about $9 — four days before the product was slated for its international release and at about one-tenth the expected street price.

In this case, pirates beat Lotus to market with its very own product by downloading an on-line version offered to paid subscribers in the U.S. or by receiving couriered disks following the Dec. 24, 1994, U.S. release, says Bryan Ghows, Asia/Pacific regional counsel at Lotus.

"We cannot assume that piracy is just mom-and-pop shops. These are operations with money and technical expertise ... that have built up an expertise in being able to distribute pirated software," Ghows says. "These guys use FedEx as much as we do."

Vaughn Allred

The Asia/Pacific region's worst offender is the People's Republic of China, whose piracy rate is a whopping 98%, according to the Business Software Alliance (BSA). Factors such as chronic lack of funds, rampant corruption, historically lax copyright laws and a central government increasingly unable to enforce its own directives at the local level combine to create what is virtually a pirate's heaven.

Most counterfeit CDs come from China, traveling as far as New York, London and even Rio de Janeiro, according to industry observers. The BSA estimates that plants in China have the capacity to produce about

S.O.S., *page 88*

INSIDE THIS WEEK:

- **U.S. INFORMATION SYSTEMS CHIEFS** are concerned that piracy will affect their pocketbooks. See page 89.
- Former FBI agents are in the employ of some U.S. **VENDORS** to track down bootleggers. See page 89.
- **BIZARRE DIVIDEND:** "We do hope it's our products they're stealing," says David Bradford, general counsel at Novell. Why do some vendors want their products on the black market? The answer may surprise you. See page 89.
- **AN AVERAGE OF 90%** of all the software in Russia, Asia and Latin America is pirated because of the sociopolitical mess in these regions. See pages 87 and 89.

S.O.S.

CONTINUED FROM PAGE 87

t00 million CDs yearly

In an attempt to protect intellectual property, the U.S and China signed a trade agreement on March t8. In the wake of that agreement, China shut down seven CD factories. One remains permanently closed. The other six have resumed operation. But these factories are taking steps to correct past mistakes and showing their respect for copyrights by indicating the source of manufacture on their prodnets, says an official with China's Stste Copyright Administration

> "Customers [in China] now call and ask if it's OK that they install the 10 legitimate copies they've bought on 100 systems."
>
> Rosemary Ho
> general manager
> Greater China
> SunSoft

Until very recently, it was virtually impossible for software companies to realize any snbstantial revenue in the world's most populous country. China's ministries and businesses — the country's whole economy — was growing on pirated software.

Since March, however, several ministries have placed large orders for legitimate software, including the Ministry of Railways, which decided to standardize 1,800 railway stations on a simplified Chinese version of IBM's OS/2 Warp.

Also, after the March agreement, Beijing's courts started looking seriously into software piracy cases, BSA officials say. In a landmark ense last month, the BSA won nearly $80,000, to he paid in a settlement by Beijing Gaoli Computer Co., which had illegally reproduced and sold copyrighted software.

But some observers sre not altogether sure that enforcement of copyright laws will be stringent. Microsoft Corp. is still steaming over last year's ruling in China that awarded Microsoft $250 in trademark counterfeiting damages that the company claimed may cost it $20 million.

"We think we are losing half of our revenue [worldwide], and that's a cooservative estimate," says Alix Pariour, senior corporate attorney, Asia/Pacific nt Microsoft and vice president of the BSA. "There is a whole other Microsoft out there that's being stolen from us."

And although attitudes are changing, mere awareness is not always enough. "Customers [in China] now call and ask if it's OK that they install the 10 legitimate copies they've bought on 100 systems. That could be called an improvement, I guess, but to what degree?" asks Rosemary Ho, SunSoft, Inc 's general manager, Greater China. ■

Image-conscious users may help kill Russian piracy

By Marc Ferranti
Paris bureau chief, IDG News Service

Fighting software piracy in Russia — where 94% of all software is counterfeit — is an uphill battle While the country in 1992 enacted laws to protect software intellectual property, it seems not to have deterred bootleggers or buyers.

Part of the problem is that it has been a slow process to convince Russians that copying or buying pirated software is wrong. The old communist ideals hold that intellectual property belongs to the public at large.

Contributing to a sense of urgency in Russia is the threat that, as the PC market expands, organized crime will take over the bootleg software market as it already has the huge video market.

"[The Mafia] is clever. They look to the future They are looking to see what's profitable," says Anatoly Gaverdovsky, vice president of Moscow-based reseller Novi Vest

Russia also seems to be dealing with an ugly repercussion of China's crackdown on its own pirates — these bootleggers are moving business to Russian shores, says Virginia Clough, the Business Software Alliance representative in Moscow While China is believed to have more than 30 plants capable of mass-producing CDs, Russia has only two, she notes.

New technologies are making it increasingly simple to set np piracy operations. Recently, software boutiques have sprung up in Moscow, complete with CD read/write technology and the ability to offer software collections on CD tailored to a client's order, she says. Piracy is also beginning to take place over the Internet as computer users with access to modems download pirated software from local bulletin boards.

All this in a country where civil penalties now provide for fines of up to $200,000, 50 times the yearly minimum wage. But to date, no one has been brought upon software piracy charges.

Pressure from the U.S. government may stoke the antipiracy movement, however. As a warning, the U.S. in April placed Russia higher on the list of abnsers under Special 301 provisions of the U.S. Trade Act for intellectual property abuse.

In the end, the most effective motor of change may be the evolving needs of Eastern European institutions themselves, which are moving to sophisticated, enterprisewide computing systems. Legitimate software means getting service and smooth upgrade cycles.

"I pointed out it doesn't make sense to try to economize by buying pirated software when we're installing large-scale systems," says Geanady Sarkisyan, a programmer at Agroprom Bank's Moscow headquarters. "We're buying products to last five years in a complex environment; we need proper documentation and support."

Agroprom Bank, for instance, first started buying legal software two or three years ago and is increasing its percentage of legal software as users move from DOS to Windows.

The bank has 300 employees in Moscow, with 1,200 branches throughout Russia. Abont 20% of the bank's PC users are on Windows. The bank's information technology platforms consists of Microsoft desktop applications and custom software built with Notes, Powersoft Corp.'s PowerBuilder and Sybase, Inc 's SQL Server.

Companies are also feeling the need to get in line with First World businesses — they want to look good and be taken seriously in the global marketplace.

"This is a business, a practical concern. We need a good image as such," says Sergei Lebedev, a young programmer. ■

Piracy issues take a backseat to corruption in Latin America

By Rob Guth and Terho Uimonen
IDG News Service correspondents

Lawyer Gustavo Leon y Leon had heard it before. Court documents helping him establish power of attorney for clients Microsoft, Novell, Inc. and Lotus in a case against Peruvian software pirstes had mysteriously disappeared.

Soon after, other documents requesting that Peruvian authorities seize eqnipment used by illegal software counterfeiters also vanished into thin air.

"I asked the judge what happened to the documents I had presented," says the Lima-based attorney. "He told me, 'Maybe they got lost. You know there are so many files in the courts....'"

On both occasions, and in many others in which his documents disappeared, Leon y Leon was able to refile papers with only a few weeks' delay, hut the mishaps underscore the difficulties of fighting piracy in judicial systems where the biggest bribe often wins the day.

Latin America is the world's second fastest growing market for packaged software (behind Asia) and is expected to grow t8% in the next four years. In response, software industry watchdogs such as the Business Software Alliance (BSA) have stepped up efforts to curtail an emerging piracy industry before it reaches maturity, observers say.

Last year, the average regional piracy rate in the t6 Latin American countries monitored by the BSA was as high as 78% and represented about 9%, or an estimated $t.3 billion, of the total losses incurred by software publishers worldwide.

As in other parts of the developing world, a key reason for the region's high piracy rate is a "weaker society of law," meaning that in countries where businesses can readily skirt taxes, copying software is often considered a trivial problem, says Richard Neff, a Los Angeles-based attorney who advises the BSA

Furthermore, in the face of serious economic and political problems, such as chronic poverty and cash-strapped elected governments pressured by powerful drug cartels, many Latin American countries find it hard to push software piracy as a major deal.

But some progress is being made in curtailing piracy in big firms, Neff says.

In December 1993, the region passed Decision No. 35t. The decision, signed by the Andean Pact nations of Bolivia, Colombia, Ecnador, Peru and Venezuela, added software copyright protection to the law books and paved the way for pirates to be prosecuted.

In Peru about 20 cases of software piracy are now being tried in court, Leon y Leon says. But in Latin America, "a key problem still is the amount of corruption at the lower levels of the criminal justice systems," Neff says.

"We have a good level of laws; it's the enforcement that's the problem," Leon y Leon says. ■

VENDOR RESPONSE

On the attack

PC software vendors reveal their counterpiracy tactics

By Kathleen Melymuka

Ask vendors whether international piracy affects users and you get mixed responses.

"If revenue drops, R&D drops, and that has a dramatic impact on products we can deliver," says Stephen DeWitt, marketing manager at **Symantec Corp.**, which fights piracy through investigation and legal action. "Our ability to deliver support services also is 100% contingent on our ability to generate revenue."

Other vendors insist that users shouldn't suffer any ill effects from piracy because losses from pirated software are diluted over the world's markets.

But no vendor we spoke with says it is sitting still while bootleggers try to rob it blind.

Some firms are fighting the $15.2 billion international piracy problem through the BSA, founded by WordPerfect Corp., Ashton-Tate Corp., Lotus and Microsoft in 1988. Member vendors support the organization with heavy dues. Novell alone, for example, contributes $1.4 million annually to the BSA.

Others companies, such as IBM, prefer to do the pirate-busting themselves.

Here are what some of the major companies are doing to keep their software legit:

NOVELL/WORDPERFECT

Since their merger, Novell and WordPerfect have combined their antipiracy efforts. The company has on its payroll 10 to 15 international antipiracy investigators led by veteran FBI agents.

Novell's investigations have revealed the makeup of a typical Novell operating system pirate. "The typical NetWare pirate is not the corporate user," says David Bradford, senior vice president and general counsel. "He is a reseller who has developed a vertical market application, bought one copy of our program, combined it with his vertical application and resold it as a vertical package. The user didn't know he got the same serial number as the auto parts place down the block."

The company uncovers such pirates when clients call in for technical assistance. The support engineer gets a serial number and knows instantly if it's a duplicate. At that point, the closest investigator flies in to find out what's going on, Bradford says.

MICROSOFT

Microsoft is active in regional antipiracy alliances worldwide, including the UK's Federation Against Software Theft and the Canadian Alliance Against Software Theft.

It is also considering methods such as encryption within program code to make its products harder to pirate, says Alison Gilligan, senior antipiracy specialist at Microsoft.

New packaging for Microsoft products, including Windows 95, will include overt antipiracy measures such as holograms and 3M Co. labels that have a patented technology that makes it difficult to counterfeit the box.

LOTUS

Lotus works primarily through the BSA for its antipiracy efforts.

But it has also taken on pirates solo. "There was a large case a couple of years ago that we brought ourselves," says Neal Goldman, deputy general counsel and manager of worldwide piracy programs. "We were the primary victim of a major piracy effort spearheaded out of Singapore. We brought a lawsuit against the defendants and put them in jail."

The company uses holograms to thwart bootleggers on the packaging end.

Goldman says Lotus plans to stay with the BSA, at least through 1996, even though its new parent, IBM, is not a BSA member.

IBM

IBM says it is primarily working through various trade associations to combat piracy.

"There needs to be an international framework to treat intellectual property at the level of copyright, across borders as part of any trade relationship," says IBM spokesman Mark Holcomb. "There [also] needs to be a mechanism to adjudicate across borders. If I [can't] come in and litigate, any protection provided by law is moot."

Melymuka is a freelance writer in Duxbury, Mass.

IS PIRACY REALLY A VENDOR PLOT TO GAIN MARKET SHARE?

One bizarre dividend may shake out of the whole overseas piracy mess — the development of a loyal user base.

"I'm not saying that I want people to steal our software, mind you," says Ilene Lang, senior vice president at Lotus' desktop business group. "But if they should steal someone's software, maybe they should steal ours, because it gets you an installed base and market recognition."

Once that installed base is established, vendors can offer users amnesty with attractive upgrade options and support, which maturing IS users will increasingly need.

"So while we're frustrated over the level of stolen products [in developing countries]," says David Bradford, senior vice president and general counsel at Novell, "we do hope it's our products they're stealing so they'll be ready to buy when the floodgates open."

That's the silver lining to piracy, he notes.

— Marc Ferranti and Kathleen Melymuka

USER RESPONSE

Does foreign piracy bug you?

IS managers aren't too concerned with illegal software — unless it costs them

William Woodside
Director of technical services
Giant Food, Inc.
Washington

I don't know if software piracy is having as much of an impact on consumers as lack of hardware, [such as] shortages of memory chips. Software piracy is a concern to me if costs are being passed along to the consumer because of it.

I think that the policing of software piracy has to be a cooperative effort. Our government has some role to play to protect our interests. Other governments have to act and enforce the laws they have, if they have them, regarding software piracy.

Debra L. Taylor
Applications programming manager
Louisiana Workers Comp Corp.
Baton Rouge, La.

I'm concerned about overseas software piracy. According to everything I've been reading, it's a bigger problem than I believed it to be. And it's been going on for quite a while.

From an economic standpoint, we have to do something to control it. It might be a difficult thing to monitor because it falls in the same category as intellectual property.

Depending on the type of software we're talking about, it could be costing me, as a consumer, a lot of money.

Reta Matter
Civil/software engineer
Sverdrup Civil, Inc.
San Diego

I'm not concerned about software piracy at this time because we don't ship overseas. Also, software today is cheap, compared with 10 years ago. What I'm more concerned about is the information superhighway, the Internet, CompuServe, where software is very easy to share.

I think it's a good idea that the costs associated with software piracy filter down to the customer so that we can get a handle on the problem.

At the international level, [piracy] is hard to control, particularly in the Far East. My guess is that one reason it goes on there is because of the economies in some of those countries.

Maybe vendors can lower the price of software in countries where the economy is weaker.

Doug Wine
IS manager
Coors Brewing Co.
Elkton, Va.

I don't like that software piracy is going on. It does become my problem if vendors are passing along the costs to customers to recoup for their losses.

I think foreign governments and their agencies should be responsible for both the policing of software piracy and the associated costs of doing that job.

Michael Lahart
Director
EDP audit and data quality
CNA Insurance
Chicago

From a corporate point of view, regarding any costs that vendors may pass along to os as consumers, I imagine that pressure in the competitive marketplace would take care of that by keeping costs under control.

From a U.S. citizen's point of view, I'm very concerned about software piracy and the fact that people in other countries are taking patented U.S. goods and making copies and selling those products.

Jim Girouard
Director, MIS
Springfield Terminal Railway Co.
Billerica, Mass.

I'm not too concerned about PC software piracy. [However,] when it comes to corporate applications, I see a bigger potential problem. If, for example, someone gets a hold of the same mainframe software I'm running and is somehow able to get into my computer, get numbers, information, etc., that's a big problem.

— Interviews conducted by Lynn Haber, a freelance writer in Jamaica Plain, Mass.

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UPDATE

No 10

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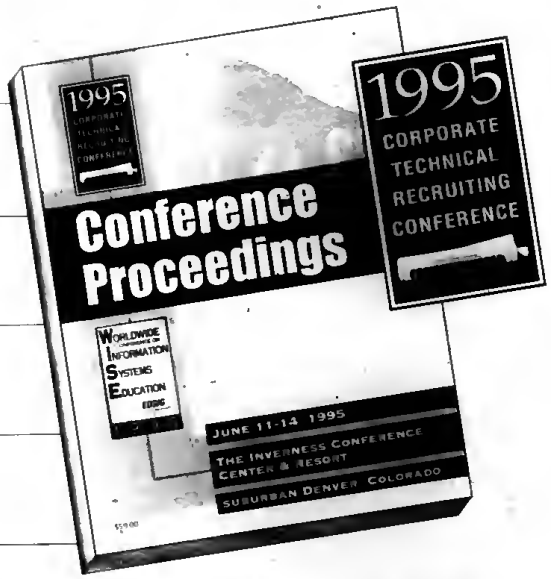

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Visual Basic: A Safe Place to Hang Your Hat

By William Storage

Opportunities abound for well-positioned Microsoft Corp. Visual Basic developers, but the language's primary charter — rapid development of business strategies — means rethinking what the career involves.

When companies need a Visual Basic developer, they want a solution builder, not just a programmer, and that distinction is at the heart of the industry's hope for the language. But Visual Basic's marketability, confusion about its suitability for tasks and criticism from disciples of other languages are issues to consider.

Information systems departments in a variety of industries have been frustrated by the lure of reusable code. Many say object orientation, in the classic sense, does not pay. Yet Visual Basic's goal of reuse through independent, compiled components has been successful — just note the explosion of extension vendors of Visual Basic controls (VBX) and OLE controls (OCX) and the acceptance of the VBX/OCX model by other platforms.

The VBX/OCX model, in the form of custom controls for use in development, takes encapsulation to an extreme. Moreover, custom controls are easy to learn because they expose only a few methods and properties. The result is a career that is broader in scope.

Rarely can C programmers keep coding skills honed while they spend time on software architecture and user interface and mapping business requirements into code. That's not true with Visual Basic. Few languages can be learned as quickly. "You can teach a businessperson [Visual Basic] a lot easier than you can teach a C person business," says John Ganter, Visual Basic developer at Sandia National Laboratories in Albuquerque, N.M.

Moderately experienced Visual Basic programmers can finish small projects in days, but the ability to create beautiful screens and manage data easily can produce a false sense of security.

Efficient high-level coding doesn't eliminate the need for proper software design and architecture; it increases it, says Alan Cooper, who was directly involved with the origin of Visual Basic and is director of the Association for Software Design. In fact, as the Visual Basic market matures, true software architects will be more in demand.

Learn to make use of Visual Basic's extensibility through third-party VBXs and libraries or through the Windows application programming interface (API). The Windows API is the most overlooked add-on, says Daniel Appleman, founder of Desaware in San Jose, Calif., a VBX/OCX add-on supplier. With the Windows API and an inexpensive Windows message interception VBX, programmers can do virtually anything that can be done in C, he says.

Author's recommended reading:

Visual Basic Programmer's Guide to the Windows API by Daniel Appleman (Ziff-Davis Press, 1993)

Visual Basic Utilities by Paul Bonner (Ziff-Davis Press, 1993)

Visual Basic How-To by Zane Thomas, Robert Arnson and Mitchell Waite (Waite Group Press, 1993)

Microsoft Visual Basic Workshop by John Clark Craig (Microsoft Press, 1993)

Coming up

What's in store for Visual Basic programmers? Microsoft in Redmond, Wash., indicates that future releases will be more object-oriented and allow programmers more low-level control. Visual Basic for Applications, a subset of the language, is also being included as the macro language in Microsoft Office applications.

Earlier this year, Borland International, Inc. released a version of Delphi based on Pascal. Some people saw it as the Visual Basic of their dreams; others found Delphi's strong type-checking cumbersome. Despite syntactical differences, the two languages are similar enough to learn simultaneously, but whether Visual Basic's lack of a true compiler will be a major obstacle to business user acceptance remains to be seen.

Likewise, Powersoft Corp.'s PowerBuilder could still give Visual Basic a run for its money. Most Visual Basic development involves databases, but its broader scope may be better positioned for integrated business plans. Moreover, Jon Roskill, director of marketing for Visual Basic at Microsoft, reports sales of more than 2 million copies of Visual Basic.

Microsoft's strategy to keep Visual Basic's scope general and let third-party products address specific needs prevents it from occasionally being the best language for some tasks but excludes it from few development challenges.

But these issues shouldn't prevent you from creating a career around it. The opportunity to learn one language with multiple roles should entice even the strongest C stalwarts. Just keep your skills set broad and learn as many third-party Visual Basic extensions as possible. There's a lot of excitement in store. ■

Storage is president of Visual Logic, Inc., a software consultancy in Boston.

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BY LINDA WILSON

Steven Freedman stumbled into the world of Lotus Development Corp.'s Notes when a friend asked him to moderate an on-line discussion group in Notes. After playing around with the software for a few months, he was hooked.

For the past year, Freedman has been a Notes administrator at ATI Technologies, Inc. in Toronto. "I was lucky because I was able to get a copy of the software and work with it even though I wasn't at a place that used Notes," he says.

He certainly picked the right field. Demand for network administrators familiar with Notes is brisk, to say the least. "We work with clients who have tried to hire people into these spots and have had great difficulty," says Neal Granoff, vice president of Connexus Consulting Group, a groupware consultancy in Andover, Mass. "There are more jobs than people to do them."

"I am constantly getting calls from people looking for administrators, but everyone I know who knows Notes is tied up," says David Gallagher, an independent Notes consultant and trainer in Gleeside, Pa.

Demand is expected to remain strong. Groupware is gaining momentum in the corporate world as more work is done in teams, and Notes is the leading groupware package. "We seldom find a site today that isn't clamoring for groupware," says Dan Smith, director of technology at Legacy Technology, Inc. in Woburn, Mass.

Lotus dropped its price from $330 per copy to $275 in January and introduced Lotus Notes Desktop, a client-only version for $155 per copy. Lotus hopes the new pricing strategy will expand its reach, allowing it to attain its goal of 10 million copies sold by year's end.

Popular opinion also has it that IBM's well-publicized acquisition of Lotus will give Notes access to the resources necessary to battle Microsoft Corp., which plans to enter the groupware field with Exchange Server.

Of course, the more applications and servers you deploy, the more administrators you need to manage the network. For example, Boston Chicken, Inc., a franchise doing business as Boston Market, has grown from one Notes server in 1992 to 37 servers today. In the same period, the company grew from one full-time administrator to three. It also has a five-person application development team and one employee in charge of quality assurance for Notes.

There's no one right way to break into the field, though most people opt for a combination of on-the-job and formal classroom training, and many choose to become certified by Lotus as Notes administrators.

Freedman, for example, became a Notes administrator with little previous information systems experience other than as an end user. He did, however, become certified as a Notes administrator.

Tom Dalton, network administrator at Boston Chicken in Golden, Colo., on the other hand, followed a traditional route. He was a Novell, Inc. NetWare consultant at Boston Chicken who was later hired as a full-time Notes administrator. Dalton learned Notes on the job and through formal courses.

Dalton decided to make the career switch about a year ago after concluding that "Novell administrators are a dime a dozen now, and I thought [Notes] would be a great niche to be in."

In fact, on-the-job training is a popular route, primarily because the supply of experienced Notes administrators is so tight. Smith says he encourages clients to identify employees interested in Notes early in the systems development process so his company has ample time to train people.

For those few Notes administrators who already have experience, however, opportunities seem practically limitless. Some, such as Gallagher, strike out on their own, while others look for unusually challenging opportunities.

Weidenhammer Systems Corp., a consultancy in Wyomissing, Pa., for example, has had trouble finding people with enough experience to help clients build and manage large, international Notes networks. Says vice president Bruce Pollock, "Somebody who just came out of a Lotus Notes administration program definitely doesn't have the skill set I'm looking for."

Wilson is a freelance writer in Glen Ellyn, Ill.

Facts at a glance

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Programmer Analyst (2 openings) (Ref. #138795) to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to client needs, analyze, design, develop & implement computer software for clients EDP systems, lead analyst to coordinate which include analyzing system requirements, user interaction for requirements study, data flow & process design development of specifications & programs, unit testing, scheduling, implementation, training, documentation & technical support on IBM 3090. Reqs. Bach. in Comp. Sci., Computer, Electrical or Electronics Engg., or equiv. in ed. & exp., 2 yrs. exp. in job offered or 2 yrs. related exp. such as Programmer, Systems Analyst or Programmer/Analyst. 1 yr. of related exp. must include design development & implementation of various commercial s/w systems on UNIX-based Workstations using ORACLE RDBMS, C & MS/DOS Windows. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd ed. & exp. Related exp. must include using IBM 3090, COBOL, MVS/ESA, DB2, CICS, TSO, VSAM, AS400 & QUERY. 400 $50,100/yr., 40 hrs/wk, 8a-5p.

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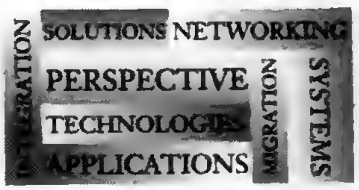

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SOFTWARE ENGINEER (2 positions) 40 hrs./wk. 9 a.m. - 5 p.m. $47,000.00/yr. Carry out systems analysis, system design, coding and testing of software application systems in UNIX environment utilizing X-Windows and C. Evaluate user requirements, perform internal and external design. Requires bachelor's degree in Computer Science or Computer Applications or Electrical Engineering. Requires 3 yrs. exper. in job offered or 3 yrs. exper. in Systems Analysis &/or Programming &/or Software Engineering &/or Computer Consulting. Requires work exper. in development of s/w systems in UNIX environment utilizing X-Windows and C. "Employer paid ad." E.O.E. Send resumes to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202. Ref. No. 126895.

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SOFTWARE ENGINEER (2 positions) 40 hrs./wk. 8 a.m. - 5 p.m. $52,000.00/yr. Carry out system analysis, system design, coding and testing of software application systems on TANDEM m/f running Guardian O/S utilizing PATHWAY, SQL, TACL & TAL. Design and schedule batch jobs using TANDEM/Net Batch Plus. Provide quality assurance for Tandem/MultiLAN and system integration support on a distributed computing environment. Requires bachelor's degree in Computer Science or equivalent. Requires 2 yrs. exper. in Systems Analysis &/or System Programming &/or Systems Design &/or Systems Consulting. Equivalent includes 6 yrs. exper. in job offered or 5 yrs. exper. in related occupation in lieu of Bachelor's degree and 2 yrs. exper. in job offered or 2 yrs. in related occupation. Requires work exper. in related occupation must include exper. in systems analysis & development of software systems on TANDEM m/f running Guardian O/S utilizing PATHWAY, SQL, TACL & TAL. "Employer paid ad." E.O.E. Send resumes to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202. Ref. No.: 126895.

Senior Systems Analyst to design and develop Windows online interactive GUI systems which satisfy client response time criteria in client/server environment specific duties include monitoring and adjusting database systems, establish and maintain databases for testing, consulting with users and systems staff, access protocols, and response requirements. duties will be performed using UNIX, Sybase, SQL, and Powerbuilder. Require Master's in Computer Science and 1 yr. exp. as a Software Eng. which includes Windows programming using UNIX, SQL, PowerBuilder and Sybase. 40 hr. wk. 9am - 5pm. $51,000/yr. Send resume to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202. Ref. No. 131795. Employer Paid Ad.

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Software Engineer required. Design & develop financial information systems & transaction processing softwares & provide appropriate client training on large Unisys A Series mainframes using UINC II (Level 14 or 15) programming, Workflow, Language (WFL), COBOL 74, the MCP/AS operating system & UINC II utilities. Bachelors Degree or its Equivalent required in Computers or Engineering, plus 3 years experience in the job duties described above. Must have proof of legal authority to work in the U.S. Salary $50,000/year for a 40 hour work week. Interested applicants mail resume to: Job Service, Attn: Pat Redington. Refer to Job Order #3060109. E.S. Staff Services, 5th Floor, 140 E. 300 South, Salt Lake City, UT 84111. Ad paid by an Equal Opportunity Employer.

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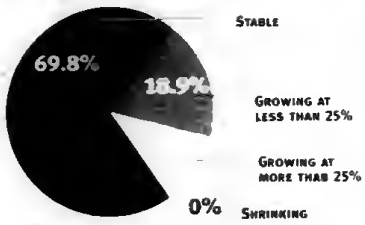

SURVEY BASE: 86 TECHNOLOGY FIRMS INVOLVED IN PROJECT MANAGEMENT SOFTWARE

SURVEY CONDUCTED BETWEEN SEPTEMBER '94 AND JUNE '95;

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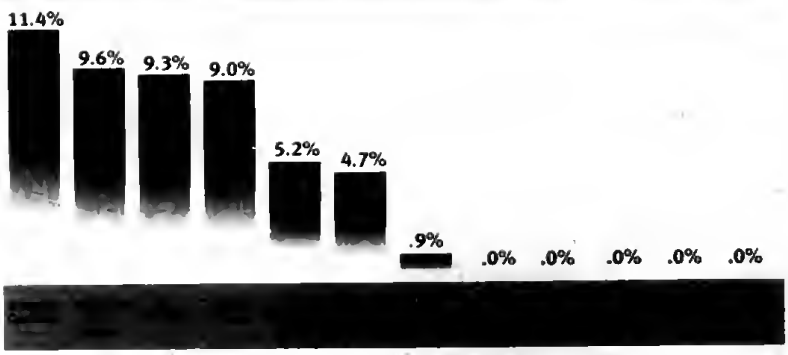
REGIONAL GROWTH ANALYSIS



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PROGRAMMER ANALYST (2 openings) (Ref: 129295) to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients, needs, analyze, design, develop & implement computer software for clients. EDP systems, enhance & customize the package including redesign of its modules, database modifications & sys. testing. The technical support provided will be for design of applications using IMS DB/DC on IBM 3090 & MVS/ESA - IMS DB/DC, TSO, CICS, DB2, COBOL II & PC 386/486/586. Reqs. Bach. in Comp. Sci., Computer Information Systems, Computer, Electrical or Electronic Engineering, Systems Analysis, Mathematics or its equiv. & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer, Programmer/Tutor or Consultant. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd ed. & exp. Must have some related exp. including designing & developing programs on IBM mainframes & using COBOL ®, CICS, DB2 & PC 386/486. $43,000/yr. 40hrs/wk., 8:30a-5p.

PROGRAMMER ANALYST (2 openings) (Ref: 136995) to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients' needs, analyze, design, develop & implement computer software for clients. EDP systems, sys. analysis, design, develop, sys. test, maintain LINC II based Mutual Fund Transaction Processing & Accounting Sys. Analyze new features additions, impact on existing functionality, implementation techniques for improving sys. throughput & database redesign. Provide quick, logical & efficient solutions within a co-existing production environment using LINC II & DMS II on UNISYS A-Series. Using environmental s/w pertaining to Unisys A-Series computers which include MCP, COMS, CANDE, WFL, DUMPALL, DM inquiry, DM Utility, ERGO & alien upper case tools LDA II, LDK, LINCLITE, LDQ & ABS-KIT also using PASCAL, IBM PC/compatible, Microsoft Word, LOTUS 1-2-3 and DBASE III. Reqs. Bach. in Comp. Sci., Computer Information Systems, Computer, Electrical or Electronic Engineering, Systems Analysis, Mathematics or its equiv. & 2 yrs. exp. in job offered or 2 yrs. related exp. as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer, Software Consultant or Consultant. Will accept 3 yrs. college ed. plus 3 yrs. exp. in job offered or related occup. in lieu of req'd ed. & exp. Must have some related exp. including using each of the following: LINC II, DMS II, MCP, COMS, CANDE, DUMPALL, LDA II & ABS-KIT. $48,700/yr. 40 hrs/wk., 8:30a-5p.

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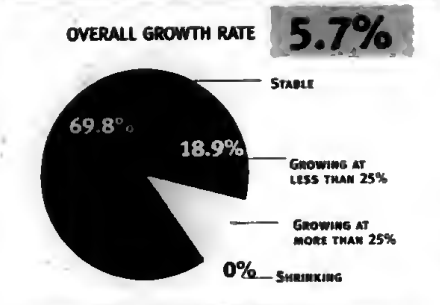

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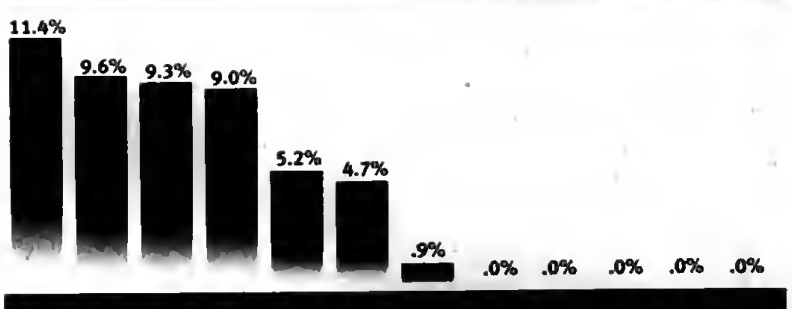

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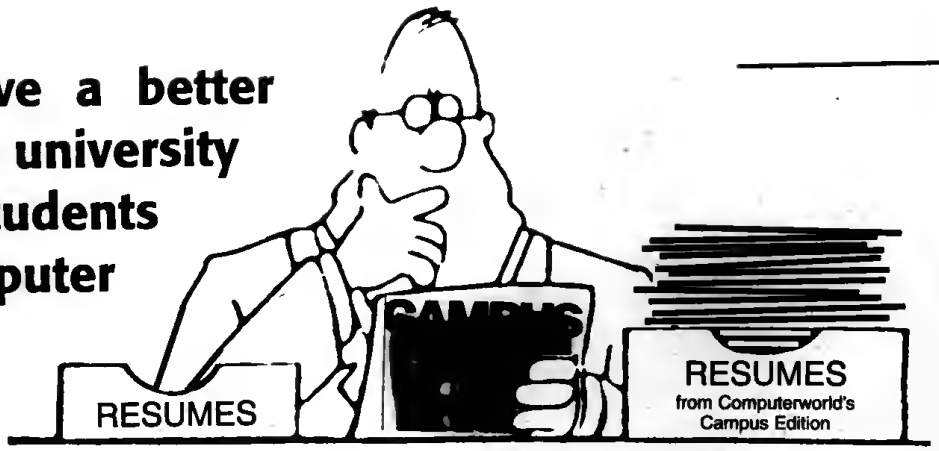

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Marketplace

Notes necessities

Database connectivity tools for Lotus' Notes

By Daniel Lyons

Connectivity to external databases is becoming increasingly important, mostly because Lotus Development Corp.'s Notes serves as a front end through which users want to retrieve data.

"There is a lot of demand for connectivity," says Matt Cain, vice president at Meta Group, Inc., a market researcher in Stamford, Conn. "A year ago, most Notes users found themselves cut off from other data sources. But that's beginning to change now because of these tools."

> **"A year ago, most Notes users found themselves cut off from other data sources. But that's beginning to change now because of these tools."**
> **Matt Cain, vice president, Meta Group, Inc., Stamford, Conn.**

Lotus in Cambridge, Mass., provides some database connectivity in Notes, "but it's very oriented to one-time queries rather than to things that you're going to do over and over in a production environment," Cain says.

Some mainstream database tools have included support for Notes. However, there are also Notes-specific database connectivity tools that require little or no formal programming, according to vendors. The tools enable users to do ad hoc queries of remote databases and schedule routine updates and retrievals.

Several key differences among the tools exist. Some provide only Open Database Connectivity (ODBC) drivers, while others offer native drivers for various databases. The native drivers are speedier and more powerful. Platform support also varies among the tools.

Lotus is trying to make it easier for users to integrate Notes with other databases. Version 4.0, due later this year, will contain "vastly expanded" database access capabilities, says Tim Dempsey, director of Notes product marketing at Lotus.

But Dempsey insists that Lotus won't compete with its third-party tool developers. Notes' built-in database integration functionality will still lack advanced features such as scheduling and data flow management.

Third-party developers agree. "We don't see Lotus as a threat," says Audrey Augun, vice president of marketing at Percussion Software, Inc. in Stoneham, Mass. Percussion has developed Notrix Composer, a Notes retrieval tool. Augun says the product is geared toward large-scale data transferrals — something Notes can't do on its own. Cain predicts Lotus will increase the built-in database connectivity of Notes — something that doesn't bode well for tool vendors.

"It'll take some time," he says, "but these guys eventually will go away. [A few] years down the road, I'd be surprised to see people providing specific applications for database linking" ■

Lyons is a freelance writer in Ann Arbor, Mich.

Players

INFOBROKER
Platforms: OS/2, Windows 3.x
Snapshot: Formerly called NotesPump, the product is derived from technology used in InfoPump, a popular data sharing product. However, InfoBroker is geared specifically toward Notes. The product is due to ship by late 1995 and will support connectivity to all major client/server relational databases. Support for mainframe and minicomputer databases will be added incrementally.

Price: $5,000 for a 10-user license
Trinzic Corp. (purchased by Platinum Technology, Inc.), Redwood City, Calif. (800) 234-7724

FOREIGN EXCHANGE FOR LOTUS NOTES
Platforms: OS/2, Windows NT, Windows 3.x
Snapshot: Developed as a Notes-specific add-on, Foreign Exchange relies on ODBC drivers and comes with support for 30 databases, including Paradox, Sybase, XBase, Oracle, DB/2, Informix and others. The product allows users to schedule automatic functions. Configuration is handled in a Notes database

Price: $2,995 for unlimited users
Groupware Concepts, Inc., Irving, Texas (214) 570-5450

NOTRIX COMPOSER
Platforms: OS/2, Windows NT
Snapshot: Notrix Composer lets users manage bulk data movement between enterprise databases and Notes. The product is form-driven, requiring no user programming. An event manager synchronizes changes to the Notes database with changes in target databases. When changes are made in one, they are immediately reflected in the other. Composer has built-in ODBC support. Native drivers for Oracle, SQL Server and others are available for $2,500 each. A version running on Sun Microsystems, Inc.'s Solaris is due later this year.

Price: $2,500 for unlimited users
Percussion Software, Inc., Stoneham, Mass. (800) 283-0800

DATALINK FOR LOTUS NOTES
Platform: Windows 3.x
Snapshot: DataLink boasts ease of use through a point-and-click interface as opposed to scripting languages that other products require. Users can design templates and subroutines and schedule database retrievals and updates. DataLink resides on a Windows-based Notes client rather than on the Notes server itself, and it supports more than 30 databases. A "lite" version will support only five low-end databases and will sell for $495. An OS/2 version of the full product is due later this year.

Price: $1,495 for unlimited users
Brainstorm Technologies, Inc., Cambridge, Mass. (617) 621-0800

ZMERGE POWER TOOL FOR LOTUS NOTES
Platforms: OS/2, Windows
Snapshot: ZMerge handles data from any source — PC, minicomputer or mainframe — and in any form, such as ASCII or binary. Translation is automatic. ZMerge can perform scheduled updates, such as a nightly refresh of information from a mainframe database. Users do not have to use the Notes application programming interface, so development is fast and easy. A Windows NT version will be released soon.

Price: $995 for a three-user license
Granite Software, Inc., Milford, Mass. (508) 473-8200

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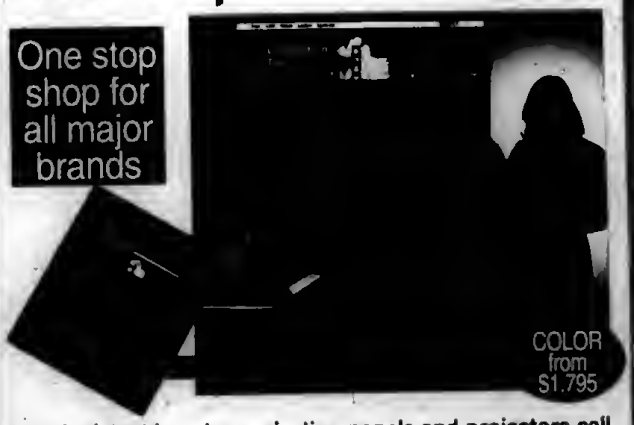

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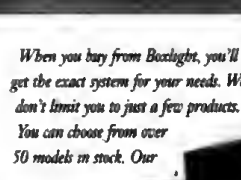

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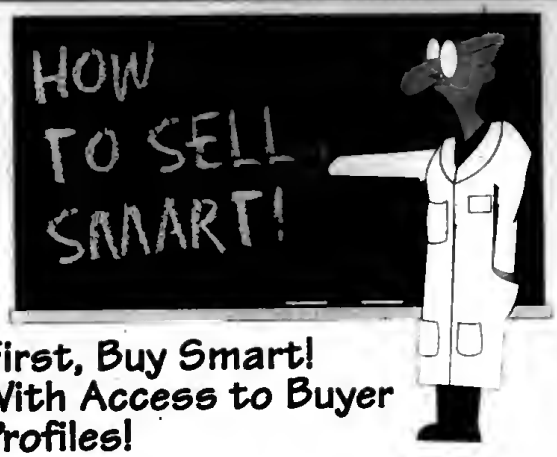

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Gainers

Percent

US Robotics(N)	49.8
Quarterdeck Corp.	42.6
Cosmotronics Corp. (N)	37.5
Brooktrout Technology	32.8
Platinum Technology	31.1
US Robotics(O)	28.4
Softkey International Inc.(O)	26.7
Tennec Corp.	26.5

Losers

Percent

Sequoia Systems Inc.	-16.8
American Power Conversion	-15.3
Amacomp Inc.	-13.3
Proteon Inc.	-10.2
MathSoft(N)	-9.8
Convex Computer	-8.9
Compression Labs Inc.	-8.5
Racotek Inc.	-8.3

Dollar

US Robotics(N)	$3.75
Texas Instruments(N)	14.63
Chipcom Corp.	12.50
Xylinx	11.25
Ascend Communications(O)	11.13
Peoplesoft(N)	10.25
Softkey International Inc.(O)	8.75
Canvas Logic(N)	8.56

Dollar

American Power Conversion	-$3.75
Newbridge Networks Corp.	-2.63
Printronix Inc.	-2.00
Amacomp Inc.	-2.00
Sequoia Systems Inc.	-1.90
Isocom Corp (N)	-1.25
Information Resources	-1.13
BetManage Inc.	-1.13

The century club

While technology stocks are setting new records on Wall Street these days, a select few deserve special mention from *The Today Show*'s Willard Scott — those with prices greater than $100.

Even after the recent bashing suffered by most tech stocks, **IBM (IBM), U.S. Robotics, Inc. (USRX) Texas Instruments, Inc. (TXN), Xerox Corp. (XRX) and Xilinx, Inc. (XLNX)** have managed to maintain stock prices of more than $100 (see chart).

Take modem maker U.S. Robotics, for example. It has watched its shares rise to these levels from the low 20s nine months ago. "Business has been very strong across the board from the need for access, both to corporate networks and the Internet," said Rakesh Sood, an analyst at Hambrecht & Quist, Inc. in San Francisco.

And Xilinx, a provider of complex programmable logic devices, "is growing quite well and has a sterling balance sheet," said Brett Hodess, an analyst at Montgomery Securities in San Francisco. He attributed its success to strong management and aggressive introduction of new products. As a result, "they have had consistently strong earnings growth," he said, describing the stock as low risk/high profitability.

Share splitting

Because of the high prices, these stocks often consider splitting their shares or providing additional shares to each shareholder at a given ratio. This reduces the stock price so it is more attractive and affordable for investors to buy many shares at once.

For example, San Jose, Calif.-based Xilinx will have a 3-to-1 (three shares for each share of stock owned) common stock split this month, its first since going public in 1990. And Sood said he expects a 3-to-1 split from U.S. Robotics in the future. —*Tim Ouellette and Stewart Deck*

Join the club

A few tech stocks have maintained their place above the century mark. If Microsoft hadn't been pummeled so hard two weeks ago, it would be a member of the club, too.

Company	Price 7/27	52-week high	52-week low
IBM	110 3/4	110 1/4	61 1/2
Texas Instruments	158 3/4	159 1/2	63 3/8
U.S. Robotics	148	148	25 1/2
Xerox	125 7/8	125 3/4	90 5/8
Xilinx	123 1/8	127 1/8	33 1/4

Exch	52-Week Range			Jul 27 Wk Net	Wk Pct	Wk Pct
				Day	Change	Change
Communications and Internet Systems						**UP 5.9%**
OTC	79.00	23.88	3 COM Corp (N)	74.13	4.38	6.1
NYS	69.25	18.00	AMERITECH Corp (N)	48.75	0.75	1.6
NYS	59.00	47.25	AT&T	57.75	+0.63	1.2
OTC	23.50	6.00	Ascend Communications (N)	22.50	11.13	102.2
OTC	19.25	10.00	Banyan Systems Inc	12.00	0.38	3.0
OTC	68.25	23.13	Bay Networks Inc (N)	45.88	1.88	9.2
NYS	58.88	48.38	Bell Atlantic Corp	57.88	0.25	0.4
NYS	68.25	50.50	BellSouth Corp (N)	67.88	2.00	3.0
NYS	39.38	30.00	Bolt, Beranek & Newman	37.00	2.25	6.5
OTC	20.25	9.00	Brooktrout Technology	20.25	5.00	32.8
NYS	59.50	37.38	Cabletron Systems	56.88	2.88	5.3
OTC	22.25	10.00	Centigram Communications	15.50	1.75	12.7
OTC	50.50	20.00	Chipcom Corp	37.63	12.50	49.8
OTC	98.38	19.50	Cisco Systems Inc.	98.38	2.75	5.1
OTC	12.00	6.13	Compression Labs Inc.	9.38	-0.88	-8.5
OTC	12.63	5.13	Computer Network Tech.	12.63	1.13	9.8
NYS	14.50	7.50	CrossComm	10.75	0.19	1.7
OTC	4.90	2.13	Data Switch Corp	4.31	0.00	0.0
OTC	56.13	22.00	DSC Communications (N)	54.00	4.88	9.9
OTC	42.00	14.13	FORE Systems Inc. (N)	37.13	2.13	6.1
NYS	15.88	9.25	General Datacomm Inds.	13.25	1.13	9.3
NYS	36.38	29.50	GTE Corp (N)	35.75	0.00	0.0
NYS	120.13	77.00	ITT Corp	117.13	1.88	1.6
OTC	25.88	17.25	MCI Communications Corp	21.06	1.31	6.0
OTC	35.75	5.50	MICOM Communications Corp	7.38	0.25	3.5
OTC	21.13	6.25	Microcom Inc. (N)	21.13	2.63	14.2
OTC	10.50	4.00	Netrix Corp.	5.38	0.38	7.5
OTC	10.67	3.25	Network Computing Devices	8.75	0.31	3.7
NYS	30.75	9.00	Network Equipment Tech (N)	30.13	0.50	1.7
OTC	36.13	15.00	Network General (N)	34.50	8.50	23.7
NYS	43.50	26.50	Newbridge Networks Corp	32.25	2.63	7.5
NYS	41.00	30.75	Northern Telecom Ltd.	37.50	1.13	3.1
OTC	23.25	13.75	Novell Inc.	16.13	-0.63	-3.7
NYS	40.13	35.63	Rykee Corp	40.00	0.13	0.3
OTC	38.63	17.75	Octel Communications Corp (N)	38.63	5.31	15.3
OTC	33.00	7.88	Optical Data Systems Inc.	32.00	1.75	5.8
OTC	6.00	-2.13	Penril Data Comm Networks	5.00	0.13	2.6
OTC	59.72	11.75	Picturetel Corp	59.38	3.90	6.1
OTC	8.13	2.13	Proteon Inc.	6.63	-0.75	-10.2
OTC	7.88	2.75	Racotek Inc.	6.13	-0.56	-8.3
OTC	6.75	3.50	Retix	4.25	0.50	13.3
NYS	26.88	17.00	Scientific Atlanta Inc	22.38	0.88	4.1
NYS	49.00	39.75	Southwestern Bell Corp (N)	42.75	-0.25	-0.5
NYS	40.13	25.88	Spigot Corp.	34.38	0.50	1.5
OTC	31.63	12.50	Standard Microsystems Corp	18.63	0.38	2.1
OTC	97.50	13.88	Stratacom Inc. (N)	55.38	5.13	6.0
OTC	8.13	1.63	Telebit Corp	4.81	0.00	0.0
OTC	143.50	75.50	US Robotics (N)	143.50	31.75	28.4
NYS	44.00	29.63	US West Inc (N)	43.50	0.38	0.9
OTC	23.50	8.13	Xircom	10.00	0.13	1.3
OTC	33.50	8.00	Xylogics Inc.	30.25	0.25	0.8
PCs and Workstations						**UP 5.4%**
OTC	7.63	3.63	Advanced Logic Research (N)	7.25	1.13	18.6
OTC	50.13	10.63	Apple Computer Inc	45.75	1.50	3.4
OTC	10.25	7.38	AST Research Inc.	15.75	0.38	2.4
NYS	51.75	30.13	Compaq Computer Corp (N)	51.25	2.75	5.7
OTC	70.13	26.00	Dell Computer Corp	67.13	5.38	8.7
OTC	29.00	11.75	Gateway 2000 Inc (N)	29.00	4.00	16.0
NYS	83.75	37.13	Hewlett-Packard Co	81.25	5.75	7.6
OTC	20.25	2.75	Micron International Inc.	18.38	0.50	2.8
NYS	45.63	22.25	Silicon Graphics	42.13	1.38	3.4
OTC	51.50	21.00	Sun Microsystems Inc	49.00	6.00	14.0
NYS	99.88	36.50	Tandy Corp (N)	99.25	1.63	0.5
Large Systems						**UP 1.8%**
ASE	13.63	6.25	Amdahl Corp	8.56	-0.06	-0.6
NYS	8.88	3.63	Convex Computer	3.13	-0.50	-13.8
NYS	84.38	34.63	Cray Research Inc.	70.13	-0.50	-0.7
NYS	12.00	6.75	Data General Corp	8.63	0.00	0.0
NYS	48.50	19.25	Digital Equipment Corp	18.75	1.76	10.4
OTC	5.56	1.06	Encore Computer Corp	1.69	0.25	17.4
OTC	38.50	9.25	Harris Computer Systems Corp	30.50	0.75	2.5
NYS	110.88	61.50	IBM (N)	110.88	7.00	6.7
OTC	7.88	3.00	Meridian Data Inc.	6.25	0.67	11.1
OTC	12.25	6.25	Netframe	5.25	-0.25	-4.5
OTC	22.75	13.63	Sequent Computer Sys. (N)	21.50	0.75	1.2
OTC	10.00	3.31	Sequoia System Inc.	7.00	1.38	10.4
NYS	39.88	25.00	Stratus Computer Inc.	26.25	-0.50	-1.9
NYS	19.75	12.00	Tandem Computers Inc	12.63	0.25	2.0
OTC	7.63	1.38	TaiCom Systems	3.06	0.31	8.6
NYS	13.63	8.25	Unisys Corp	9.00	0.00	0.0
Software						**UP 4.9%**
OTC	66.50	27.75	Adobe Systems Inc	63.00	2.00	3.1
OTC	8.00	2.50	American Software Inc.	3.50	0.00	0.0
OTC	30.75	8.25	Apple Inc	29.75	2.75	10.2
OTC	90.25	24.63	Autodesk Inc	87.75	3.00	4.4
OTC	7.88	1.75	Backward Info. Systems	6.88	0.25	3.8
OTC	34.00	22.00	BGS Systems Inc	32.50	-0.75	-0.8
OTC	83.25	41.00	BMC Software Inc	78.25	6.00	8.1
OTC	31.25	16.88	Boole & Babbage	30.13	-0.38	-1.2
OTC	14.50	8.00	Bond and Int'l Inc	12.88	1.75	30.9
OTC	11.75	5.75	Brock Control Systems Inc	9.13	0.63	7.4
OTC	3.75	1.75	CE Software	3.25	0.00	0.0
ASE	21.88	7.88	Cheyenne Software Inc.	18.50	0.75	4.2
OTC	57.63	50.50	Cognos Inc. (N)	52.13	1.75	3.4
NYS	76.00	37.50	Computer Associates	72.38	4.38	6.4
NYS	11.13	2.50	Computervision Corp (N)	10.63	1.38	14.8
OTC	48.25	21.50	Compuware Corp	34.75	0.75	2.1
OTC	28.75	8.00	Cosmosmart Inc.	24.75	-0.75	-2.9
OTC	19.50	10.13	Cotel Corp	18.13	0.63	3.6
OTC	16.25	8.00	Dataware Technologies Inc.	11.50	-0.69	-4.8
OTC	46.00	17.25	Fregot Corp	42.38	1.38	3.4
OTC	8.75	3.13	4th Dimension	7.00	0.63	0.8
OTC	12.13	9.50	Frame Technology (N)	11.75	1.25	4.1
OTC	35.50	11.50	FTP Software Inc	29.50	2.50	8.5
OTC	26.00	7.25	Group1 Software	22.88	2.88	14.4
OTC	13.88	8.25	Gupta	9.38	0.50	5.6
OTC	11.75	6.63	Hogan Systems Inc	11.50	0.38	3.4
OTC	53.75	24.25	Hyperion Software Corp	52.25	6.75	14.8
OTC	18.63	11.25	Information Resources	13.00	-1.13	-8.0
OTC	12.38	9.50	Informix Corp	10.88	2.75	8.6
OTC	14.38	7.38	Intergraph Corp	11.38	0.38	3.4
OTC	5.13	2.63	Interleaf Inc.	10.13	1.38	15.7
OTC	26.25	10.25	Intersolv Inc. (N)	24.69	3.44	16.2
OTC	88.50	34.50	Intuit Inc	84.50	4.00	5.0
OTC	47.81	20.75	Legent Corp	47.81	6.69	16.1
OTC	11.38	3.63	Magic Software Enterprises	11.00	0.63	6.0
OTC	16.50	6.75	Mainstreet Group Inc.	15.25	0.00	0.0

Exch	52-Week Range			Jul 27 Wk Net	Wk Pct	Wk Pct
				Day	Change	Change
OTC	40.00	14.75	Manugistics Corp	24.25	0.25	1.0
OTC	6.75	1.66	MathSoft (N)	5.75	-0.63	-9.8
OTC	60.50	7.50	McAfee Associates (N)	59.00	5.88	10.9
OTC	19.88	9.38	Mentor Graphics (N)	18.50	0.75	4.2
OTC	16.53	10.75	Micom Focus	11.75	0.25	2.2
OTC	9.50	4.75	Microgram Inc	6.50	1.13	33.6
OTC	109.25	69.25	Microsoft Corp	93.75	0.00	0.0
OTC	22.50	5.63	MultiManage Inc.	18.50	-1.13	-5.8
OTC	42.38	23.75	Oracle Corp	42.38	1.75	0.7
OTC	56.63	29.25	Parametric Technology (N)	50.63	5.38	10.5
OTC	24.75	7.88	ParcPlace System (N)	9.94	0.00	0.0
OTC	75.00	16.50	Peoplesoft (N)	71.25	10.25	16.8
OTC	12.88	4.63	Phoenix Technologies	11.13	0.00	0.0
OTC	16.38	5.50	Platinum Software	15.50	1.00	6.9
OTC	75.25	13.50	Platinum Technology	34.75	5.88	31.1
OTC	30.50	29.50	Progress Software Corp.	57.63	2.38	4.3
OTC	15.31	3.94	Quarterdeck Corp	15.31	4.56	42.4
OTC	26.75	50.13	Rainbow Technologies Inc	24.75	0.25	1.0
OTC	8.00	2.00	Raytheon	7.50	0.63	9.1
OTC	4.38	1.00	Ross System	0.38	0.00	0.0
OTC	40.25	11.50	Software International Inc. (N)	40.25	0.75	26.7
OTC	6.25	2.88	Software Publishing Corp	1.38	0.13	3.0
OTC	12.50	5.25	State of the Art	8.50	0.50	6.7
NYS	42.00	25.00	Sterling Software Inc. (N)	41.75	1.75	4.4
OTC	15.00	4.63	Stroud Ormanec Research	12.31	0.94	8.2
OTC	55.00	19.88	Symantec Inc	33.75	0.13	0.4
OTC	30.00	11.13	Symantec Corp	27.88	1.19	33.6
OTC	67.25	36.00	SynOpsys	64.50	4.38	10.8
OTC	30.88	30.63	System Software Assoc	20.88	0.38	1.8
OTC	18.13	5.50	Systemsoft Corp	16.88	0.75	4.7
OTC	8.06	3.25	Tennec Corp	8.06	1.69	26.5
OTC	24.00	7.88	Viewlogic Systems	12.94	0.06	0.5
OTC	22.00	10.75	Vmark Software Inc.	15.88	0.75	5.1
OTC	10.75	6.63	Walker Interactive Systems	6.88	0.38	5.8
OTC	55.50	15.00	Wall Data Inc	18.88	0.31	0.7
OTC	10.75	8.13	Wang Laboratories Inc. (N)	10.75	2.50	32.8
Semiconductors						**UP 5.9%**
NYS	67.50	22.75	Advanced Micro Devices	33.38	1.00	3.1
NYS	37.88	16.88	Analog Devices Inc	35.00	1.81	5.3
OTC	69.38	21.00	Atmel Corp (N)	59.50	5.75	8.2
OTC	14.88	3.63	Chips and Technologies	14.25	1.81	12.8
OTC	46.25	30.50	Cirrus Logic (N)	46.25	9.50	34.1
NYS	55.25	15.00	Cypress Semiconductor Corp (N)	47.00	3.75	7.5
NYS	22.50	13.38	Dallas Semiconductor	22.00	2.13	10.7
OTC	68.50	18.75	Integrated Silicon Systems (N)	36.25	2.00	5.8
OTC	78.38	28.38	Intel Corp	67.25	5.75	9.4
NYS	49.63	12.75	LSI Logic Corp	47.88	2.25	4.9
OTC	61.00	15.50	Lattice Semiconductor	39.00	2.50	6.7
NYS	34.75	15.25	Micron Technology	31.38	2.88	12.6
NYS	90.13	68.00	Motorola Inc (N)	79.88	2.13	2.8
NYS	31.75	14.38	National Semiconductor	27.13	0.38	1.4
OTC	41.69	6.75	Sierra Semiconductor (N)	41.69	2.81	4.9
NYS	159.00	63.38	Texas Instruments (N)	158.88	14.63	10.2
OTC	33.63	10.75	VLSI Technology	30.38	2.75	10.0
OTC	5.25	1.78	Weitek	4.94	0.38	8.4
ASE	21.25	13.13	Western Digital Corp.	14.88	1.38	10.2
NYS	120.75	82.50	Zilog Inc	120.75	11.25	10.3
OTC	54.13	37.38	Zoran Inc	47.81	4.75	11.1
Peripherals and Subsystems						**UP 4.8%**
OTC	25.88	14.38	American Power Conversion	18.38	2.75	15.3
OTC	44.25	16.25	Adaptec Inc (N)	42.38	2.31	5.9
OTC	27.25	14.75	Banctec Inc	17.63	0.13	0.7
OTC	12.75	6.38	Cambex Corp (N)	12.13	1.88	18.1
ASE	5.44	3.38	Cognitronics Corp (N)	4.81	1.31	37.6
NYS	14.63	9.88	Conner Peripherals	13.75	0.81	6.3
OTC	14.00	7.00	Creative Technologies Inc.	8.38	0.31	3.6
OTC	18.13	3.50	Data Race Inc	13.50	1.31	10.8
ASE	8.75	4.75	Database Corp (N)	7.25	0.13	1.7
NYS	37.38	14.00	EMC Corp	29.13	1.00	4.5
OTC	28.50	7.00	Emulex Corp	26.00	1.00	4.0
OTC	17.75	11.25	Evans & Sutherland	17.25	1.75	7.6
OTC	24.00	11.75	Exabyte	19.50	2.88	14.0
OTC	6.75	1.88	Intelligent Info. Systems	3.38	0.00	0.0
OTC	28.13	2.31	Interex Corp.	26.00	3.50	15.6
OTC	7.24	2.00	JPL Systems Inc	7.25	1.25	20.8
OTC	67.00	19.75	Komag Inc. (N)	62.00	7.00	15.3
OTC	7.25	2.13	Maxton Corp	4.44	0.12	2.8
OTC	13.50	6.88	Micropolis Corp.	6.75	0.38	5.9
OTC	10.50	0.75	Pinnacle Micro Inc.	17.25	2.00	13.1
OTC	38.75	8.63	Printronix Inc.	10.50	2.00	0.7
NYS	11.75	4.00	QMS Inc.	4.50	0.25	5.9
OTC	26.75	11.75	Quantum Corp	26.56	1.88	15.0
OTC	15.00	7.38	Radius Inc	9.00	0.75	7.6
NYS	10.38	6.38	Recognition International (N)	9.88	-0.50	-3.7
OTC	7.00	1.66	Reason Inc.	4.88	0.06	0.8
OTC	45.50	27.88	Seagate Technology	39.63	2.38	6.4
NYS	39.13	17.88	Storage Technology	34.63	2.13	6.7
NYS	52.38	30.13	Tektronix Inc	48.63	0.13	0.3
NYS	175.88	90.63	Xerox Corp	148.88	1.88	1.3
Services						**UP 0.4%**
OTC	27.00	14.38	American Mgmt. Systems	24.75	0.25	1.0
NYS	3.38	0.56	Analogic Inc.	0.81	-0.13	13.7
OTC	20.00	14.50	Analysts Int'l	17.50	0.00	0.0
NYS	66.00	38.75	Auto Data Processing	64.63	1.25	2.0
OTC	36.75	14.00	Cambridge Tech Partners	19.13	0.38	2.1
NYS	61.25	23.50	Ceridian Corp (N)	61.00	0.50	0.9
NYS	32.50	18.00	Comdisco Inc.	31.50	1.25	4.1
OTC	20.00	6.63	Computer Publishing (N)	18.81	1.13	6.4
NYS	81.25	39.75	Computer Sciences (N)	49.25	0.50	0.2
NYS	16.50	7.50	Computer Task Group (N)	14.75	0.25	1.7
NYS	36.00	6.75	CompUSA Inc	16.63	+2.50	7.8
OTC	18.75	5.38	Comtech Data Servs on Inc	8.63	-0.56	-6.1
OTC	14.75	9.13	Edmark Develop Software	11.13	0.00	0.0
NYS	48.25	33.00	General Motors E (NS)	41.06	0.88	2.1
OTC	15.25	6.88	Machine Corp (N)	13.88	1.75	14.1
OTC	18.13	7.50	Intelligent Electronics	13.00	-0.06	-0.5
OTC	17.25	1.88	Medisel	6.50	0.50	7.1
OTC	15.88	8.50	Mecklermedia Inc	11.75	0.25	1.9
OTC	40.00	31.13	Parcnet (N)	37.75	2.00	4.0
NYS	51.63	32.63	Policy Management Sys.	51.50	2.50	5.1
NYS	33.50	12.25	Reynolds and Reynolds	31.25	1.00	3.1
OTC	24.50	18.75	Sei Corp	22.13	-0.24	1.1
OTC	42.75	21.13	Shonco Medical Systems (N)	41.75	0.75	1.8
OTC	8.00	4.00	Sirl Systemhouse	7.00	0.13	1.8
OTC	26.50	11.75	Software Spectrum Inc	24.75	0.75	3.0
OTC	11.75	16.38	Sunguard Data Systems (N)	29.25	2.13	7.8

KEY: (H) = New annual high is reached in period (L) = New annual low reached in period

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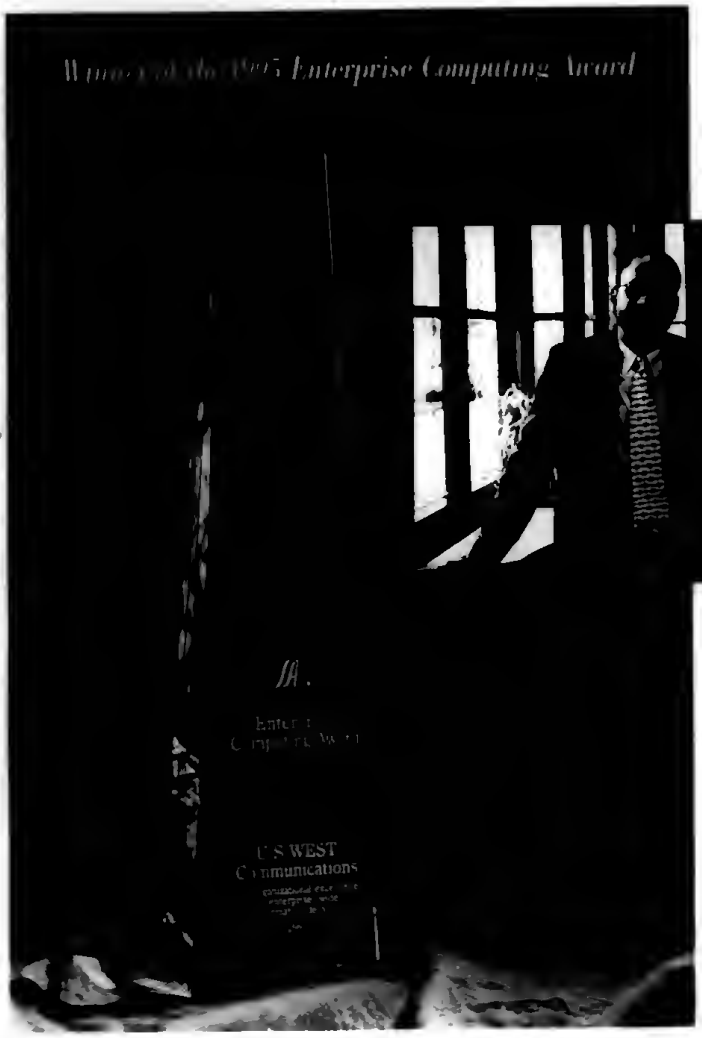
U S WEST Communications Makes the Right Connections



Calling on the SAS® System for Critical Decision Making, the Telecommunications Leader Responds to Customers in More Ways than Ever

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"Until recently, various organizations and systems within U S WEST Communications were responsible for portions of the data collection, reporting, and analysis tasks necessary to assess the performance of our business," says Ronald Telson, Director of Mass Markets and Operations-Processes. "We are now implementing a program to provide an integrated and unified approach to management-by-facts."

The Data to Meet the Demand

When it came to choosing the software to meet that business challenge, U S WEST Communications called on the SAS System of software. More than 28,000 companies throughout the world rely on the SAS System for its analytical breadth as well as its capabilities for data warehousing, for client/server applications development, and for graphical user interface—all of which U S WEST Communications found useful.

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Windows 95 plans set

CONTINUED FROM COVER t

crosoft's as well as industry analysts' projections. Sales in the first six months will be primarily fueled by consumer upgrades and purchases of new PCs at retail outlets.

For some corporate users, the issue is having enough time to plan deployment. For example, it's "going to be a timing issue for us," said Lesa Kastanas, technology research consultant at First Union Corp., the nation's sixth-largest bank, headquartered in Charlotte, N.C. She said the bank will probably begin rolling out Windows 95 in January.

For others, it's the old Release 1.0 dilemma. "You'd hate to be the first one out the door and [then] find out that some of your applications don't work [with it]," explained Rick Beardsly, a systems administrator at O'Brien Corp. in St. Louis, a maker of process control equipment and instrumentation covers. He said he has had generally good experiences with the beta, but the company has not yet committed to migrating. Among other issues, O'Brien is still mulling over Windows NT.

"We will probably wait until sometime in 1996 before rolling it out [because] we think it will take six months or so for any bugs to shake out," said Bruce Benham, vice president of IS at RE/MAX International, Inc., an international real estate franchiser based in Englewood, Colo.

Like nearly all the other IS managers interviewed for this article, RE/MAX doesn't have a deployment plan yet. "I wouldn't expect us to do that until this fall. We've told Dell [Computer Corp.] that we don't want Windows 95 preloaded on our systems until later this year," Benham said.

Indeed, most users' intentions to sit out the first six months also appear to be reflected in the survey. Sixty-nine percent do not have an implementation plan for Windows 95 in place yet, which Enderle says is foolhardy.

"The time to plan is in the next few weeks, even if they plan to hold off on rolling it out later," Enderle said. He predicts that many users will simply install Windows 95 on their own, but a deployment plan will help alleviate problems caused by what he calls a "user-driven migration" [CW, July 24].

In fact, First Union and Pacific Enterprises Corp., the parent company of Southern California Gas Co. in Los Angeles, are now beginning to create implementation plans in preparation for later rollouts.

However, six-month wait or not, according to the *Computerworld* survey, the vast majority of corporations that have tested Windows 95 will adopt it as their standard desktop operating system within two years of its Aug. 24 ship date.

"Just because Windows 95 is coming out doesn't mean I have to jump on it," said Stuart Bard, director of IS at Miglin Beitler, Inc., a large real estate firm in Chicago that has not yet tested the system. "I'm going to have people budget for it in 1996," said Bard, who is responsible for the company's 150 PCs at 15 locations.

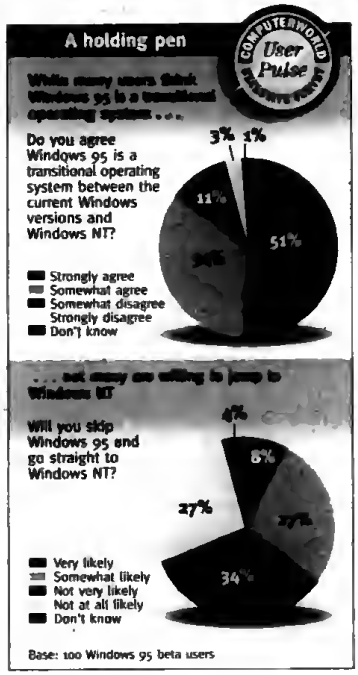
Slightly above average

Regardless of their migration plans, most users gave the operating system a B-level grade.

"I'd probably have to give it a B or a B+, [but] I don't think I could give them an A except for effort," said Jim Lisiak, senior software engineer at Chevron Information Technology Co. in San Ramon, Calif. Chevron will migrate the bulk of its units to Windows 95 — potentially as many as 30,000 units — by September 1996, Lisiak said.

"I'd give it a B. It's not a C because it's not average, and it's not an A because it does have a couple of holes in it," said Bill Carrigan, technology adviser at Pacific Enterprises. Among the holes Carrigan cited were minor but nagging installation problems and the fact that "getting the full benefit is bigger than just installing Windows 95" because new applications are also necessary.

Senior editor Cheryl Gerber contributed to this report.



Beta barometer

***Computerworld*'s survey focused on 100 corporate decision-makers who have been evaluating prerelease Windows 95 code through Microsoft's beta or Windows 95 Preview programs.**

Only users who "recommend, specify, approve or authorize the purchase" of software for corporate use were interviewed.

Last spring, Microsoft sent out 50,000 beta copies, supplemented by delivery of an additional 300,000 to 400,000 copies in what it called a Preview program. Each copy included a license to install the beta on five PCs. Microsoft estimates that as many as 1 million users have tried Windows 95 in the past few months.

***Computerworld*'s survey was intended to measure the intent of corporations that have already tested Windows 95, and it is not necessarily indicative of the large number of companies waiting for final release of the product before doing their own testing.**

Talkback@cw.com

If your company plans to move to Windows 95, do you have a migration plan in place? If not, why not? Sound off to us at talkback@cw.com. Please include your full name. We'll publish a sampling of reader opinions in an upcoming issue.

Windows NT on the horizon

Corporate beta testers overwhelmingly believe that Windows 95 is a transitional environment and that Microsoft will gradually evolve its standard desktop environment to Windows NT, according to *Computerworld*'s survey.

However, while 89% of those polled said they "strongly" or "somewhat agree" that it is transitional, only 8% said they were "very likely" to skip Windows 95 altogether and go straight to Windows NT.

In fact, of those survey respondents who have users running Windows NT as their standard desktop — about 5% — nearly 30% said they are likely to migrate their NT users to Windows 95 within two years.

Eventually, around the turn of the century, Microsoft plans to merge both systems into a single NT-based desktop operating system. Before that occurs, there will be at least one more release of Windows 95 based on the current code base, Chairman Bill Gates said earlier this month. —*Stuart J. Johnston*

Imaging vendor attacks storage, access needs

By Tim Ouellette

When Healthmaster, Inc. decided to install an imaging system, the health care vendor wanted a simple way to move image files to optical disc over a Novell, Inc. NetWare wide-area network.

"The key to all of this was how to get the images to optical," said Mavis Coley, president of Mavis Coley & Associates, consultants on the Healthmaster project. With 122 offices spread across five states, Augusta, Ga.-based Healthmaster couldn't afford to have administrators at each site, so it wanted NetWare for simple administration.

The company turned to a hierarchical storage management system (HSM) that ran on NetWare and could link up with the Kofax Image Products imaging software used to develop the system. The software came from Imagery, Inc., an imaging vendor offering its HSM product — GroupStore HSM — separate from its own imaging system.

HSM software automatically moves lesser-used files from primary storage on a server to less expensive, secondary optical or tape storage devices. Users can directly access files without waiting for support personnel to restore an older file from backup.

GroupStore HSM can work with other imaging systems or other document management systems, said Dave Lakness, president of Imagery, a subsidiary of Eastman Kodak Co.

While imaging vendors try to include some HSM piece in their systems, HSM is not often sold as a separate product, said Linda Mustahaler, vice president of research at Currid & Co. in Houston.

"This is a new approach for an application kind of company," she said. HSM offerings for PC LANs have traditionally come from backup vendors such as Avail Systems Corp. and Cheyenne Software, Inc., she added.

GroupStore HSM runs on NetWare 4.1 and is tightly integrated with NetWare Directory Services. Additional optical jukeboxes can be added anywhere on the network, so users can access virtual storage. The system focuses on information being stored rather than the media on which it is stored, said Mike Peterson, an analyst at Strategic Research, Inc. in Santa Barbara, Calif.

Users can also have the system make sure files that they access most often stay resident in faster magnetic media, said Paul Mason, research manager for enterprise system management at International Data Corp. in Framingham, Mass. This feature is not found in HSM software from backup-oriented vendors, he said.

Drive technology holds promise — if you can get your hands on it

Disk drive technology that packs a gigabyte of data into a single 2½-in. drive will prove popular in high-end laptops, even if it costs a little more. What road warrior is going to worry about $300 to $350 over the life of his machine if his laptop can look so much like his home office?

The same technology — magneto-resistive (MR) drives, which are just coming to the fore — could have a similar impact on RAID. MR-based RAID could offer more capacity and greater reliability because it would depend on fewer moving parts.

But there's a catch. The disk drive industry, which usually suffers from cycles of oversupply, faces a shortage. Several sources say they don't think there will be enough MR drive heads if demand increases.

Several sources say they don't think there will be enough MR drive heads if demand heats up.

Charles Babcock

There are few alternatives to MR. The established inductive-head approach is nearing its limits, but it continues to be pushed forward. This approach lacks the combination of small size and low power consumption that makes MR so attractive in laptops and other tight configurations.

MR is simply a different way to build a disk drive. Instead of the magnetic bit on a platter inducing a tiny electrical current, as in an inductive head, the bit changes the level of resistance to a current flowing through an MR head. The MR phenomenon is easier to detect, so the bit size can shrink. And not far down the road is giant MR, which amplifies the effect and is even easier to detect. That will allow the bit size to shrink again.

IBM is the leader in MR drives and has been producing MR heads since 1991. It originally said it would sell MR heads to other manufacturers, then it backed away from that statement. IBM still consumes all the MR heads it can produce.

Seagate is getting ready to ramp up MR production for its own product lines, and Barry Rossum, senior director of business development, says the company will sell up to 30% of its production to other manufacturers.

Seagate plans to produce 27 million MR heads next year, up from 1.5 million this year. It is presumed that production problems ascribed to IBM won't apply to Seagate.

Quantum is another manufacturer with its own MR manufacturing capability. "We will no longer be designing inductive-head drives," says Peter Franklin, director of high capacity drive marketing. This marks a complete shift from inductive-head drives to MR. But Quantum, which purchased all of Digital's MR capacity, will produce only half of what it needs and will buy the rest from an unnamed supplier.

"There are not enough MR heads for everyone," concedes Jim Porter, president of Disk/Trend, Inc., a market research firm in Mountain View, Calif. He cites Western Digital, Micropolis, Connor Peripherals and Maxtor as drive makers that do not have their own MR capacity. Several Japanese suppliers will bring additional MR capacity on-line, he notes.

Leaping into MR is an expensive move, which explains why so few manufacturers have been eager to do it. A fabrication plant represents a $100 million investment, and that's only the first step. But the incentive is that MR is yielding 60% drive capacity increases a year, a dramatic increase over the 30% that was the average of inductive technology. The early implementations of MR caught up with inductive technology last year and will stay ahead from now on.

But modern hard drives are difficult to produce. The drive heads float two millionths of an inch off the platter. Rossum compares it to flying a Boeing 747 six inches off the runway at 700 miles an hour.

IBM says it has achieved a gigabyte per square inch of platter surface in the laboratory with giant MR, and Read-Rite, an MR supplier in Milpitas, Calif., says it is shooting for two gigabytes per square inch in its research with Lawrence Livermore Laboratory.

I have a conviction that the laws of supply and demand will rule how quickly you get ushered into the age of MR. But go for it if you can. The future belongs to MR.

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Inside Lines

Digital and Microsoft get cozier

Digital is expected this week to announce plans to license its clustering technology to Microsoft so that the software giant can make it a standard ingredient in Windows NT, sources close to both companies said. The goal is to have the same clustering technology across all of NT's supported platforms, including PowerPC, Intel and Mips as well as Digital's Alpha. Coming after months of high-level executive talks, the announcement of stronger ties is likely to include other business agreements as well, the sources said.

Repeat after us, Larry

So what was up with the dozen or so of San Francisco's finest on hand at Oracle's lavish launch of Oracle Power Objects? Maybe Oracle was anticipating the need for police protection if the throng of customers, Oracle employees and third-party developers got overly rowdy about the drag-and-drop capabilities for building client/server applications. Actually, Oracle CEO Larry Ellison is lucky that IBM execs such as John W. Thompson kept their cool when the Oracle CEO twice referred to IBM's OS/2 by its former name of OS/2 Presentation Manager. Major faux pas, Larry.

Night of the living DOS

While Windows 95 beta testers and Preview program participants say they are enthusiastic about the new system and anticipation of its Aug. 24 ship date is running high, there are still a few "gotchas." For instance, one beta tester said the gold code version of Microsoft's Windows 95 reverts back to the DOS prompt in order to format a floppy. Evidently, the old DOS prompt is one of those new ease-of-use features. And we thought DOS was dead. Ha.

CA vs. DOJ: Separating the winners

On the surface, it appeared that a group of concerned Legent VSE users won their battle against Computer Associates last week. The Islandia, N.Y., software giant agreed to cross-license five Legent VSE products to other vendors under a deal with the U.S. Department of Justice. But the war isn't over by a long shot. The Justice Department still has to approve the as-yet unselected licensees as viable competitors to CA/Legent. Yet analysts are projecting that even if every Legent customer using the five products in question were to jump ship to another vendor for support, CA would stand to lose less than $15 million in annual maintenance fees.

ORBs — biting soon at a vendor near you

It seems almost every vendor playing the object request broker game is preparing major new releases for the Object World show, which starts Aug. 14 in San Francisco. This time, the name of the game is CORBA 2.0 — or more specifically, the addition of support for new features in this version of the Common Object Request Broker Architecture standard. Expersoft and Postmodern Computing Technologies will arrive with new ORBs to demonstrate, and Digital plans to unveil the next release of its ObjectBroker. Meanwhile, we hear from vendors close to the effort that it's been no picnic preparing for the interoperability demo.

Microsoft Exchange beta looming

Companies that have signed up for Microsoft's beta program for Exchange may be getting their copies as early as this week, sources say. Although Microsoft is rather tight-lipped about it all, users are antsy to try out features such as an electronic forms tool and a dynamic bidirectional access to IBM's OfficeVision for scheduling. But one potential beta tester said his major concern was getting "a stable product and delivery in the time frame" promised by Microsoft.

The Baltic states got out from the under the heel of one bureaucratic behemoth a few years back, but now their post offices are falling in line behind another one. Estonia's postal authority picked IBM for a project to link post offices nationwide. The Latvian post office is already buying IBM hardware, and Lithuania is apparently also talking with the computer giant. But if you have some news tips to pass along, you can bypass bureaucrats and postal workers by calling Computerworld *via our 24-hour voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474.*

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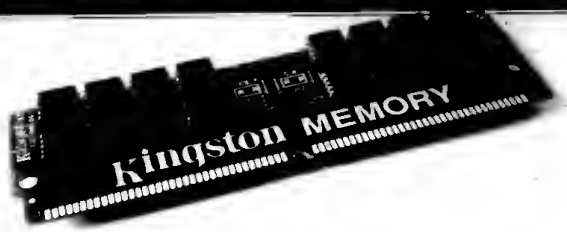

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